SPECIALIZED ACCOUNTING

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PREFACE

The major purpose of this book is the study of accounting principles definitely applied to various types of business activity. No attempt has been made to present a complete system of accounting for any business. Forms were purposely omitted except where necessary to illustrate the application of basic accounting principles. The discussion of each business is prefaced by a brief but detailed study of the nature, functions, organization and legal features, peculiar to the type of business under consideration.

While written for all who desire a broader knowledge of accounting, it is primarily designed to appeal to three groups of readers:

The first group comprises students of accounting, who require a knowledge of the adaptation of the fundamental accounting principles necessary to meet the practical requirements of representative types of enterprises. The lectures on each business have been written as concisely as was thought consistent with clearness, featuring the salient accounting features and administrative problems of each type of business, so that the student might focus attention only on these specific facts. The rigid adherence to a uniform lecture outline on each business treated and the large number of illustrative journal entries and problems in the text should be especially helpful to students.

The second group comprises practicing accountants, who desire a handy reference book, to familiarize themselves quickly with the accounting features and administrative problems peculiar to certain types of enterprises they may be called upon to audit. To enable the reader quickly to grasp and visualize the accounting features and administrative problems of the various enterprises treated, two charts have been prepared for each enterprise. The organization charts show the flow of authority throughout the personnel of each business treated. The charts of accounting books and records present in diagrammatic form the various financial records and reports for each business so arranged and

connected as to show the functions of each, the course of entries from one to another, and the general relation each bears to the others and to the system as a whole.

The third group comprises persons preparing for the C. P. A. examination, who need a working laboratory of C. P. A. material covering lectures and accounting theory and auditing questions, and practical problems on representative types of enterprises. The lectures have been prepared not only to give the C. P. A. candidate the chief characteristics of certain typical enterprises, but to solve, within practical limits, as many of the theory and auditing questions as possible. The practice work is found in Appendices A and B, which classify all the C. P. A. theory and auditing questions, and practical problems relating to specific lines of businesses, from over five hundred C. P. A. examinations. This compilation of C. P. A. material should prove invaluable to persons preparing for the C. P. A. examinations.

The two preliminary editions of this work have enabled the authors to have each chapter criticised by practicing accountants and successful business men who are recognized as authorities on the respective types of business treated. It has been a rare privilege to have had the constructive criticism of so many successful men of affairs. We are exceedingly grateful to the many helpers we have had, for their efforts to make the work a success, and we here renew our acknowledgments and thanks to them.

The authors especially wish to acknowledge the help so willingly extended by Robert S. French, General Manager and Secretary, National League of Commission Merchants, Washington, D. C.; C. B. Clark, Controller, The J. L. Hudson Co., Detroit, Mich.; George G. Scott, C. P. A., formerly President, North Carolina C. P. A. Board, Charlotte, N. C.; A. P. Husband, Secretary, Millers' National Federation, Chicago; O. N. Lindahl, Auditor, Universal Portland Cement Co., Chicago; K. E. Pricket, Chief Auditor, War Finance Corporation, Washington, D. C.; J. Elliott Moran, Assistant Trust Officer, American Security & Trust Co., Washington, D. C.; Frank A. Chase, General Manager, The American Savings, Building & Loan Institute, Kansas City, Mo.; Harry P. Howard, Assistant Secretary, Potomac Insurance Company of the District of Columbia; William B. Bailey, Economist, R. S. Hall, C. P. A., Accountant, W. S. Williamson and H. Pierson Hammond, Assistant Actuaries, Travelers' Insurance

Co., Hartford, Conn.; L. A. Pelton, West Coast Lumbermen's Assn., Seattle, Wash.; W. B. Reed, Consulting Accountant, formerly Secretary of the National Coal Assn.; and Walter Daspit, Controller, Mid-Co Gasoline Co., Tulsa, Okla.

While it is impractical to mention the numerous books and articles that the undersigned have carefully studied while compiling these lectures, the following monographs should be mentioned: F. S. Todman, *Brokerage Accounts;* W. B. Reed, *Bituminous Coal Mine Accounting;* R. E. Belt, *Foundry Cost Accounting;* E. Szepsi, *Cost Control and Accounting for Textile Mills;* A. F. Jones, *Lumber Manufacturing Accounts;* W. Mucklow, *Real Estate Accounts.* The undersigned acknowledge their indebtedness to these pioneers of accounting literature. They are especially indebted to Mr. Todman, because the legal and accounting complexities incident to the fiduciary relationship existing between a broker and his clients, caused them to rely to an unusual extent on his monograph.

THE AUTHORS.

WASHINGTON, D. C.

TABLE OF C. P. A. EXAMINATION PAPERS COVERED

State	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	Total
A. I. of A																						2a	2a	2a	2a	2a	2a	2a	1a	15
Ala.																								1a	2a	2a	1a	2a	1a	9
Ariz																									1a				1a	2
Ark																								1a	1a	1a	1a	2a	1a	7
Cal.									1		1		1								2	2b	2a	2a	2a	2a	2a	2a	1a	20
Colo.																		1				1a	1a	2a	2a	2a	2a	2a	1a	14
Conn																							2a	2a	2a	2a				8
D. C																												1	1	2
Del																			1							1a	2a	2a	1a	7
Fla												1	1	1								1a	2a	2a	2a	1a	2a	2a	1a	16
Ga																								1						1
Hawaii																												1a	1a	2
Ida.																								1a	2a	2a	1a	1a	1a	8
Ill.								1	2	1	1	2	2	1	2	1	1	1	1	1	2	2	2	2a	2a	2a	2a	2a	1a	34
Ind																					1	2	2	1a	2a	2a	2a	2a	1a	15
Iowa																							1			1a	1a	1a	1a	5
Kan																				1	1		1a	1a	1a	2a	2a	2a	1a	12
Ky																						1								1
La																		1						1a	2a	2a	2a	2a	1a	11
Me.																			1					1a	1a	1a	2a	2a	1a	9
Md.								1						1								1		1				1		5
Mass.															1	1	1	1	1	1	1	1	1a	1a	1a	1a	1			13
Mich.											2	1	1	1	1		1	2	2	1	1	1a	2a	1						17
Minn.																					1		1a	1a	2a	2a	2a	2a	1a	12
Miss.																												1a	1a	2
Mo.																		1	1	1		1a	2a	1a	2a	2a	2a	2a	1a	16
Mont.																									1a	2a	1a	1a	1a	6
Nebr																						1a		1a		2a	2a	2a	1a	9

Nev.																									1a		2a	1a	1a	5
N. H																							2a	2a	2a	2a	2a	2a	1a	13
N. J.									1	1	1	1	1	1								1a	2a	2a	2a	2a	1a			16
N. M.																											1a		1a	2
N. Y.	1	2	2	1	2	2	2	2	2		2	2	2	2	1	2	1	2	2	2	1	2	2	2	1			1	1	44
N. C.																					1	1	1	3	2	1	2	2		13
N. Dak																			1		1	1	1	1		2a	1a	1a	1a	10
Ohio													1		1			1	1	1	1	1	1	1	1	2	2	2		16
Okla.																								1						1
Ore.																							1a	1a		1a	1a	2a	1a	7
Pa.				1	2	1	1	2	1	1	2	1	1	1		1	1	1	1		1	1	1	1	1	1				24
R. I.												1																1a	1a	3
S. C.																								1	2a	1a	1a	1a	1a	7
S. Dak.																									1a	1a	1a	2a	1a	6
Tenn.																						1a	1a	1a	2a	2a		2a	1a	10
Tex.																				1				1a	2a	2a	2a	1a	1a	10
Utah																									2c	1a	2a	2a	1a	8
Vt.																									1a	1a			1a	3
Va.															1	1	1				1		1	1a	1a	1a		1		9
W. Va																						1		1		1a	1a	2a	1a	7
Wis.																			1	1	1	1	1	2	1	2a				10
Wash.								1		1	1	1	1	1	1	1	1	2	1	1	1	1	1a	2a	2a	1a	1a	2a	1a	25
Wyo.																									1a		1a		1a	3
Total	1	2	2	2	4	3	3	7	7	4	10	10	11	9	8	7	7	13	14	11	17	27	36	40	55	58	53	62	38	530

(a) Institute paper used by state board.
(b) June, 1917, state paper; October, 1917, Institute paper.
(c) June, 1920, state paper; November, 1920, Institute paper.

CONTENTS

SPECIALIZED ACCOUNTING

CHAPTER I

COMMISSION MERCHANTS

Nature of Business.—Commission merchants are individuals, partnerships, or corporations which offer, for a certain percentage of the total sales price, their special knowledge and the services of their organization and equipment, in receiving and selling commodities belonging to others. The commodities which are most frequently handled in this manner are fruits and produce, live stock, and grain.

Closely related to commission merchants—and, in some minds, more or less confused with them—are brokers who handle similar lines of merchandise, but on a somewhat different plan. The chief difference between a commission merchant and a broker lies in the relation that each bears to his principal.

The commission merchant is the agent and direct representative of the owner; he has physical custody of the commodity and the proceeds of the sales, remitting immediately to the shipper the proceeds of the sales, less deductions for advances, commissions earned for his services, freight, and other costs. Usually the sales are reported immediately to the owner, and, in the case of fruits and produce, live stock, and grain, the commission merchant assumes the responsibility for the collection of the accounts—in fact, he sells on credit entirely at his own risk. Unless specifically advised by the owner as to the prices and terms at which the merchandise must be sold, he has full control of the selling, exercising his best judgment based on all conditions. In many cases the commission merchant finances the grower or shipper, advancing cash or credit to cover production, picking, and packing costs.

The broker, on the other hand, does not receive the goods, but merely arranges for a sale, subject to the approval and confirmation of the owner. He assumes no responsibility either for the reliability of the purchaser or the quality of the commodities; but

it is very evident that his continued success in business is dependent upon both. The commodities which are most frequently handled by brokers are real estate, commercial papers, stocks and bonds, and textiles.

In addition to commission merchants who sell various commodities, there are also selling agents who represent manufacturers to the trade. Selling agents at trade centers make sales by samples, and orders are sent to the factory, from which shipments are made and where the accounts are kept. Often, however, selling agents have large storage warehouses, and issue warehouse receipts, and make advances on goods consigned to them. In such cases, selling agents are, in effect, commission merchants.

When property is shipped to be sold, it is called a "shipment." The party who ships the property is called the "consignor." When property is received to be sold, it is called a "consignment." The party who receives the property to be sold is called the "consignee." The consignor generally sends the consignee notice of a shipment, in the form of a letter of advice, or a consignment invoice, and a bill of lading. Or, if the matter has been arranged beforehand, the consignor's name or registered stencil number appears upon the goods. Sometimes, however, produce commission merchants receive goods consigned to them without knowing to whom they belong. These are known as "no-name consignments," and are handled and disposed of in the usual way, and the proceeds retained until the owner is found.

Organization.—The commission merchant operates on a small margin, making it essential that a rapid turnover be made on all products handled. This factor emphasizes the need of an efficient organization to handle adequately the maximum amount of business which comes to him at the peak of the rush season. If business is slack, he is prompted to make purchases, in order to keep his sales force and facilities profitably employed the year around. His organization, so far as it relates to his principals or customers, must function along the following lines: (1) receipt of goods, (2) sale of goods, and (3) accounting to consignors. The organization chart of a large company (Fig. 1) presents the various functional heads, under which are shown the various divisions with their respective operative functions and activities.

Legal Status.—The general laws relating to the commission business are such that the accounts to be kept and the procedure to be followed are quite accurately defined. The legal relation

which exists between the consignor and the consignee is that of principal and agent. From a legal standpoint, a contract usually regulates the duties and rights of both parties, but their relations are, for the most part, governed by what are known as the "customs of the trade." When there is no contract, the rights and duties of both parties will be governed by the customs of the trade.

The commission merchant, receiving specific instructions from his principal, is bound by them. In the event that the factor is advised as to the price at which the goods must be sold, then that price must govern the sale, and the goods cannot legally be sold for less. Should no specific instructions be given the factor as to

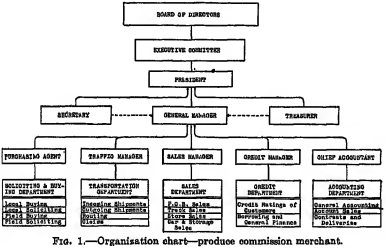


FIG. 1.—Organization chart—produce commission merchant.

the selling price, the law requires that he sell them at the highest prices obtainable. If he can prove that he exercised reasonable discretion in extending credit, he will not be held responsible for losses on credit sales unless he receives a special compensation for guaranteeing collections. The factor can deliver a binding discharge to the buyer and guarantee the quality or character of the goods usually sold with a warranty.

If the factor has made advances to his principal, he has a lien upon the goods upon which the advances were made for the amount of the advances and for any expenses incurred in connection with the protection and sale of the goods. As agent, the factor must keep proper accounting records, in order that he may account to the principal for the merchandise sold, in

the form of a statement called an "account sales." Unless it is expressly provided for in the contract, the books of the factor are usually subject to the inspection of the principal. This privilege to some extent precludes the possibility of the factor making a secret profit to which he is not entitled.

Due to the exigencies of the business, it is not practicable for the factor to keep the consignors' cash and customers' accounts separate from his own. Since, however, practically all commission merchants operate under *del credre* agency contracts,

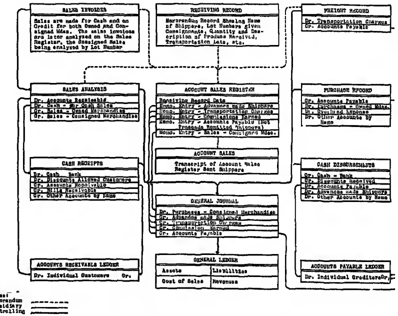


FIG. 2.—Chart of accounting books and records—produce commission merchant.

whereby they guarantee collections, the legal provision that an agent who mingles the money and property of his principal with his own is liable for any resulting loss is unimportant, inasmuch as the distinction between accountability and liability, for cash or guaranteed accounts receivable, is practically negligible.

Accounting Books and Records.—The accounting books and records used to record the transactions in a commission business depend, to some extent, upon (1) the commodities handled, (2) the size of the business, and (3) whether or not shipments are made, as well as received, on consignment.

Chart of Accounting Books and Records.—The chart (Fig. 2) presents in diagrammatic form the accounting books and records used in a produce commission business. It has been chosen because of the simplicity of the accounting records, and the fact that the goods are usually sold immediately upon receipt, to the retail trade. The records are arranged and connected so as to show the functions of each, the course of entries from one to another, and the general relation each bears to the others and to the system as a whole.

It will be noted, from a study of the chart, that the accounting for merchandise received on consignment is treated in a different manner from the merchandise purchased outright by the commission merchant. The reason for this difference in treatment is that consigned merchandise does not belong to the consignee, and his liability to the consignor arises only after the goods are sold. This condition makes it unnecessary for the commission merchant to show consignment transactions in his general books, except insofar as they affect his own financial standing.

In order that this point may be clearly understood, the following journal entries present the method of accounting to the consignor immediately after a sale of consigned merchandise. For the purpose of simplicity, the following transaction will not include any charges for commissions, transportation, advances, allowances, etc., usually made against the shipper.

1. To establish the revenue account with sales of consigned merchandise after the sale, and the corresponding asset account:

Accounts Receivable or Cash	\$7 000	
Sales—Consigned Merchandise		\$7 000
(Note entries on sales analysis record and the memorandum entry on the account sales register in chart.)		

2. To establish the consignee's liability to the consignor, and the corresponding charge to cost of sales, for consigned merchandise:

Purchases—Consigned Merchandise (at sales value)	\$7 000	
Accounts Payable		\$7 000
(Note memorandum entries on account sales register, which become positive entries in the general journal.)		

It will be noted from the above journal entries that "Sales—Consigned Merchandise" and "Purchases—Consigned Merchandise (at sales value)" are in the nature of twin statistical accounts, offsetting and nullifying one another. Eliminating the two statistical accounts referred to above, the liability of the consignee

to the consignor is established by crediting Accounts Payable, and the merchandise sold the customer is charged either to Cash or to Accounts Receivable. When the account sales is prepared and the check for the proceeds is made out, an entry is made in the cash disbursement record, debiting Accounts Payable and crediting Cash. It will be noted that the Accounts Payable account is the controlling account of liabilities to consignors and to creditors for purchased merchandise, it being unnecessary to set up separate controlling accounts, inasmuch as the nature of the liabilities are not dissimilar.

There is also the problem of accounting for merchandise on hand which does not belong to the commission merchant and which cannot be treated as an asset on his books. This necessitates keeping a complete record of such merchandise in memorandum form on the account sales register. At the close of business each day, or month, an inventory is taken of all consigned merchandise remaining on hand unsold, by lot numbers, to prove the accuracy of the quantities of goods unsold as shown by the individual consignments in the account sales register.

Account Sales Register.—One of the most important records in the commission business is the account sales register, which accumulates all the memorandum entries which are later journalized at the close of the accounting period in the general journal, for entry in the general ledger. In order that the functions of this record may be clearly understood, the following journal entries are presented. For simplicity, it is assumed that only one consignment was received and that the merchandise was sold.

1. Advance Made Consignor	$ 2 500	
Cash		$ 2 500
Advance made shipper recorded in cash disbursements record and posted in detail to account sales register.		
2. Freight	100	
Accounts Payable		100
Freight charges paid on shipment recorded in freight record and posted in detail to account sales register.		
3. Cash (Cash Sales)	10 000	
Sales—Consigned Merchandise		10 000
Consigned merchandise sold for cash recorded in sales analysis record and posted in detail to account sales register.		

4. Memorandum entry in account sales register for commission earned. Commission ($1 000) earned on total sales.		
5. Purchases—Consigned Merchandise	$10 000	
Advance Made Consignor		$2 500
Freight		100
Commission		1 000
Accounts Payable		6 400
Closing journal entries recorded in general journal for entry in the general ledger, from data presented in the account sales register after the account sales has been prepared.		
6. Accounts Payable	6 400	
Cash		6 400
Net proceeds remitted consignor, as shown by the account sales recorded in cash disbursements record.		

From the above transactions, it will be noted that the total effect of the consignment on the commission merchant's records results in the simple journal entry of:

Cash	$1 000	
Commission		$1 000

Account Sales.—Upon the completion of the service rendered by the commission merchant, the usual method of settlement with the shippers is by means of an account sales, which comprises a summarized statement of all transactions connected with a particular consignment. At the close of business each day, or monthly, an account sales is sent to each shipper, and is usually accompanied by a check covering the net proceeds stated in this form. It is not necessary that the commission merchant wait until the entire consignment is sold before rendering the shipper an account sales. Most commission merchants render shippers an account sales and enclose a check for the net proceeds at the close of business each day, accounting to the consignors for the portion of the consignments which have been sold.

Journal Entries.—Many authorities recommend that the value of commodities shipped on consignment be entered in the financial records of the consignee at the time the goods are received. Under this method it becomes necessary to make numerous adjusting entries following the sale of the goods at a later date. In the produce commission business, where it is impossible for the shipper to specify the selling price and the goods are usually

sold immediately upon receipt, the procedure mentioned above would be time-consuming and impracticable. Consequently, in practice, only memorandum entries are made of consignments as they are received and no entries are made in the final records until the consigned goods are sold.

In order that the two methods may be compared, the various entries necessary under each method are shown opposite each other in the following table.

Entries in financial books recording consignments, when collections are not guaranteed and goods are recorded as soon as received. (This method is only of theoretical importance, as it is not commonly used in practice.)	Entries in financial books recording consignments, when collections are guaranteed and goods are recorded only when sold. (This method is commonly used by *del credere* commission merchants.)
Receipt of Goods: Debit: Consignment Account. Credit: Consignors' Goods Account. With consigned value of goods received.	Receipt of Goods: No financial entries necessary—merely (unvalued) memorandum entries of quantities received
Advances and Freight on Consignments: Debit: Consignors' Accounts Current. Credit: Own Cash Account.	Advances and Freight on Consignments: Debit: Advances to Consignors. Debit: Freight (Chargeable to Consignor). Credit: Own Cash Account
Sale of Goods (Consigned Values): Debit: Consignors' Goods Account. Credit: Consignment Account. With consigned value of goods sold.	Sale of Goods (Consigned Values): No financial entries necessary, as consigned value of goods received was not originally recorded.
Sale of Goods (Sales Values): Debit: Consignment Customers. Credit: Consignors' Accounts Current.	Sale of Goods (Sales Values): Debit: Own Accounts Receivable. Credit: Sales—Consigned Merchandise.
Collection of Consignment Sales: Debit: Consignors' Cash Accounts. Credit: Consignment Customers.	Collection of Consignment Sales: Debit: Own Cash Account. Credit: Own Accounts Receivable.
Remittance to Consignor: Debit: Consignors' Account Current. Credit: Consignors' Cash Accounts. Credit: Commission Earned. Debit: Own Cash Account. Credit: Consignors' Cash Accounts.	Remittance to Consignor: Debit: Purchases—Consigned Merchandise. Credit: Freight (Chargeable to Consignors). Credit: Advances to Consignors. Credit: Accounts Payable. Debit: Accounts Payable. Credit: Own Cash Account.
Closing the Books: Debit: Commission Earned Credit: Profit and Loss.	Closing the Books: Debit: Commission Earned. Credit: Profit and Loss. Debit: Sales—Consigned Merchandise. Credit: Purchases—Consigned Merchan-

Assets.—The assets of the commission merchant engaged in receiving and selling merchandise on consignment under *del*

credere agreements and buying and selling commodities on his own account will usually be composed of real estate, buildings and fixtures, accounts receivable (which includes customers' accounts, advances made, and prepaid items of expense due from consignors on consignments not yet closed out), and inventories of owned merchandise. Inventories of merchandise on hand which represent consignments unsold cannot be considered as assets of the consignee, in view of the fact that the goods are the property of the various consignors.

Advances.—Commission merchants sometimes find it expedient to make advances to growers to cover certain costs incident to the production of commodities which are to be later shipped on consignment. These advances may be considered valid assets of the commission merchant, providing the commodities for which the advances were made have not been received, or, if received, have not been sold. However, at times when market values decline, the advances are sometimes greater than the amounts realized from the sales of the crops, in which event the commission merchant shares or may even have to assume the grower's loss.

Claims.—Owing to the highly perishable nature of the products handled, claims against carriers for damage caused by delay and rough handling are very numerous in the fruit and produce commission business. While sometimes handled according to other methods, it is usually preferable to maintain a separate set of double-entry books for the handling of claims. A journal entry is made upon the filing of a claim, debiting the account of the railroad company upon whom it was made, and crediting the account for which it was made (as merchandise, or the consignor, for whom claims are often made as a service). Upon payment of a claim, the account of the railroad company is credited, and the account originally credited is debited. The check and memorandum are then passed to the financial bookkeeper with a notation showing what account on the general books to credit, and, in the case of a claim made for a consignor, the company's check is sent in settlement. The claim ledger will, therefore, show at all times the total of claims outstanding, and also for whose account the claims have been filed. In closing the books, an estimate can be prepared by the claim department, showing the amount of the company's claims which, in its opinion, are worth carrying as assets. This method, while somewhat cum-

bersome, is fully justified in cases where such claims are very numerous.

Liabilities.—The liabilities of a commission merchant who receives and sells merchandise on consignment and buys and sells goods on his own account are mainly in the form of "accounts payable." The controlling account, Accounts Payable, will include liabilities to creditors for purchased merchandise, and to consignors for sales of consigned goods. Liabilities for either purchased or consigned merchandise are created when the title to the property is transferred by the owner to the commission merchant. The liability, therefore, for "purchases—owned merchandise" is created when the goods are shipped to the commission merchant, but the liability for "purchases—consigned merchandise" is not present until the goods have been sold for the account of the principal.

Usually consigned merchandise is sold to the trade, and the net proceeds are remitted by the commission merchants to the shippers on the same day that the goods are received. In view of this procedure, the "accounts payable—goods consigned" on the balance sheet of the consignee are usually small, being limited to the liability for partially sold consignments.

Proprietorship Accounts.—Since commission merchants operate as ordinary partnerships, or as corporations, their capital accounts present no unusual accounting or auditing features.

Balance Sheet.—There is little to explain about the balance sheet for a commission merchant, as it does not differ materially from that of any other mercantile establishment. After the assets are evaluated, and the liabilities determined, there are no special problems in assembling the figures. A typical balance sheet for a commission merchant who receives and sells merchandise on consignment and who buys and sells commodities on his own account is shown as follows:

NAME OF COMPANY

Balance Sheet

As of............19....

ASSETS

Current Assets:			
Cash:			
Petty Cash Fund	$		
Cash in Banks	......	$......	
Accounts Receivable:			
City Customers	$......		
Country Customers	.....		
Due from Consignors (for freight, etc.)	......		
Advances on Contracts	......	......	
Inventories:			
Owned Merchandise	$......		
Supplies	......	......	$......
Deferred Charges:			
Prepaid Interest		$......	
Unexpired Insurance		......	......
Fixed Assets:			
Real Estate		$......	
Buildings		......	
Equipment		......	......
Total Assets			$......

LIABILITIES AND CAPITAL

Current Liabilities:			
Notes Payable		$......	
Accounts Payable:			
Trade Creditors	$......		
Due Consignors	......	......	$......
Valuation Reserves:			
Depreciation		$......	
Bad Debts		......	......
Net Worth:			
Capital Stock	$......		
Less Unissued Stock	......	$......	
Surplus:			
Start of Period	$......		
Addition during Period	......	......	......
Total Liabilities and Capital			$......

Expenses.—In the commission business a certain class of expenditures is encountered which is necessary to protect and safeguard the interest of the shipper and affect the sale of his merchandise. The principal items are transportation costs, insurance, allowances made customers, etc., and these are properly chargeable against the proceeds of consignment sales. Such expenditures may be incurred by the commission merchant, provided no instructions have been issued to the contrary by the shipper.

The revenue expenditures incident to the conduct of a commission business do not require an elaborate classification of accounts. Figure 3 presents a detailed classification of some of the important items of expense encountered in a produce commission business.

Income.—The income of a commission merchant doing a general merchandising and commission business is mainly composed of revenue derived from the sale of owned merchandise and commissions earned on the sale of goods received on consignment. In addition to the usual commission earned, commission merchants who operate under *del credere* agency contracts receive an additional commission, sometimes referred to as a "guarantee," for sales of consigned merchandise on credit. In the case of cash sales, however, the consignee is not entitled to claim a "guarantee," for the reason that he assumes no risk in making them.

If it is desired to show the accrued revenue for a particular period on consignments received which have been partially disposed of, this information can be obtained by reference to the account sales register and an appropriate journal entry constructed, crediting the revenue account, Commissions Earned, with the revenue earned on such sales as have been made and delivered.

Profit and Loss Statement.—A typical profit and loss statement for a consignee who receives and sells goods on consignment under *del credere* contracts and who buys and sells commodities on his own account will appear as follows:

Financing	Transportation	Handling Costs	Hazard	Selling
Financing Crop Movement, Including Interest	Freight	Cold or Common Storage	Shrinkage	Telegraph Charges
Interest on Freight	Refrigeration in Transit	Precooling	Deterioration	Supervision
Insurance	Protection against Cold by Heater Service	Loading on Cars	Damage in Transit Not Covered by Claims, Including Consequential Damage	Sales Force
Advertising Special Brands	Expense of Caretakers with Cars	Warehousing	Car Shortage	Traffic Force
	Demurrage	Tallying and Checking	Delays in Transit Not Covered by Claims	Telephone
	Diversion	Weighing	Freezing; Overheating	Heat and Light
	Storage in Transit	Processing or Curing	Collection of Claims against Carriers	Power
	Ice at Destination	Re-sorting	Market Hazards Caused by Delays, Decline in Values, Excessive Supplies, Unseasonable Weather, Poor Condition Business Depression, Racial and Local Food Habits, Holidays, Lack of Buying Power, Competition of Other Commodities (Local or Imported), Exports, Imports, etc	Rent
	Tallying and Sorting	Repacking		Insurance on Plant and Employees
	Stripping	Ripening		Labor
	Bracing	Washing Vegetables		Postage
	False Floors	Trimming		Office Supplies
	Paper, Shavings, Straw, etc.	Packages		Bank Collection
		Packing Material		Collections
		Unloading		Discount and Interest
		Cartage		Taxes
		Inspection by Government or Private Agencies		Repairs
		Recoopering		Depreciation
		Cushions		Bad Debts
		Caps		Advertising
		Stencils		
		Strapping or Wiring		

FIG. 3.—Classification of expenses for commission merchants. (Taken from "Wholesale Distribution of Fresh Fruits and Vegetables" by R. G. Phillips, assisted by Samuel Fraser for the Joint Council of the National League of Commission Merchants of the United States, the Western Fruit Jobbers' Association of America, and the International Apple Shippers' Association.)

NAME OF COMPANY

Profit and Loss Statement

For Period Ending............ ....19......

Sales and Income:			
Sales—Consigned Merchandise	$.. .		
Sales—Owned Merchandise	......	$......	
Deductions:			
Discounts	$......		
Allowances	.....	......	
Net Sales		$......	
Commissions Earned		......	$......
Cost of Sales:			
Purchases—Owned Merchandise	$......	$......	
Purchases—Consigned Merchandise (at Sales Price)	......	......	......
Gross Profit on Sales—Owned and Consigned Goods			$......
Selling Expenses:			
(Itemized)		$......	
Delivery and Warehouse Expenses:			
(Itemized)		......	
General Expense:			
(Itemized)		......	......
Net Profit from Sales			$......
Financial Income:			
(Itemized)		$......	
Financial Expense:			
(Itemized)		......	......
Net Profit for Period			$. ....

Special Auditing Features.—The most important features to be considered in the audit of a commission merchant's books and records, where consigned merchandise is received for sale, are:

1. Have consigned goods been inventoried as belonging to the commission merchant?

2. Is the liability for unsettled consignments properly set up?

3. Have payments been made purporting to be in settlement of consigned lots which are not supported by evidence that such lots have been received?

4. Are advances made to growers to bind contracts for future shipments or is sale of produce properly set up as an asset under Accounts Receivable in the balance sheet?

5. Does the balance purporting to represent claims receivable from transportation companies seem excessive?

6. Are the expenses incurred for the benefit of the consignors in agreement with the memorandum entries made to each consignment in the account sales register?

7. What are the contractual relations between the consignor and the consignee with respect to the terms and conditions governing the sale of consignments?

8. Have legitimate charges been made consignors for unusual services, such as storage, special services, etc.?

9. Do insurance policies covering consigned merchandise contain stipulations concerning the facts of title?

10. Do inventories of consigned merchandise not yet disposed of check with quantities not yet sold, as shown by the account sales register?

The auditor may satisfy himself with reference to the above questions by the following methods:

1. Trace all goods on the inventory book back to the receiving book (test a sufficient number of items if a complete check is not practicable). Examine inventories of purchased goods and, if paid invoices are not available, check with the purchase record.

2. Check memorandum entries of sales in the account sales register with the sales analysis.

3. Make a test check of consigned lots, in the receiving book with corresponding entries in the account sales register.

4. Check disbursements in the cash disbursements record with memorandum entries in the account sales register.

5. Examine claim records to determine the proportion of uncollected claims carried in previous years. If the amount seems excessive, request that a reserve be set up to provide for possible cancellations.

6. Make a test check of expenses incurred for the benefit of the consignors, as recorded in the account sales register, with the freight and cash disbursements records.

7. Examine contracts or, if no formal contracts exist, examine correspondence between both parties, for agreements.

8. Inquire of the management as to whether it is the custom to make such charges, and, if so, scrutinize account sales register to see if they have been made.

9. Examine insurance policies covering consigned merchandise.

10. Make a test check of consigned lots, as shown by the inventories, with the quantities shown as unsold in the account sales register, by individual consignments.

CHAPTER II

DEPARTMENT STORES

Nature of Business.—A department store consists of a number of retail stores, each handling a separate line of merchandise, grouped together under the control of one management and usually under one roof. Each department is treated as a separate enterprise, and comprises what would ordinarily constitute a single-line store. The number of departments varies, but the usual attempt is to handle enough lines of merchandise profitably to be all-sufficient for the average buyer. The extent to which a department store can profitably extend its activities, however, depends upon local conditions.

The department store rarely buys through a wholesaler, but as a rule deals directly with the manufacturer. The volume of its business enables it to purchase merchandise in large quantities from the manufacturer, at lower figures than a concern operating on a smaller scale. This method of buying saves some of the profits which would ordinarily go to the wholesaler.

Department stores have a distinct advantage over large single-line houses, by their ability to maintain branch offices in the larger cities at home and abroad. These branches have a good advertising value to the store, but the chief value of their foreign branches, or offices, is in the execution of postseason orders and the early discovery of new attractions. Finally, the branch office becomes a means for collating valuable statistics relating to current trade conditions and various other matters and information of interest to the concern.

Organization.—The organization of a department store logically resolves itself into five functional divisions, as follows: administrative, occupancy, publicity, buying, and selling. The organization chart (Fig. 4) presents the various officials and functional heads, under which are shown the several divisions with their respective operative functions and activities.

Legal Status.—Though the legal status of some of the large department stores is that of a sole proprietorship or a partner-

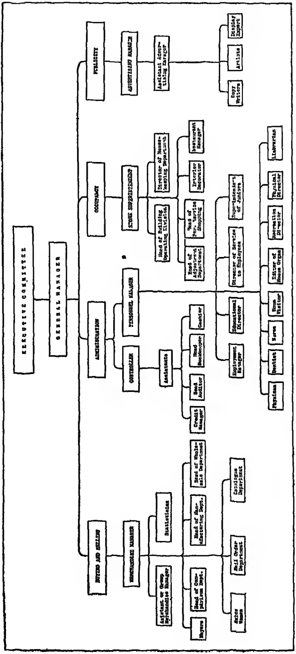


Fig. 4.—Organization chart—department store.

ship, in the majority of cases department stores are controlled and operated under the corporate form of organization.

Accounting Books and Records.—Figure 5 presents in diagrammatic form the accounting books and records used in a department store, so arranged and connected as to show the functions of each, the course of entries from one to another, and the general relation each bears to the others and to the system as a whole.

Assets.—*Methods of Computing Inventories at End of Period.*—With the exception of the distribution of overhead expense, there is perhaps no other element in the accounting for department stores so important as the correct valuation of inventories at the close of an accounting period. There are two methods by which the inventory at the end of the period may be taken, *i.e.*, (1) cost, or (2) cost or market, whichever is lower, provided the same method is followed in subsequent periods. The latter method is the more conservative and is the only safe one to follow if an overstatement of profits is to be avoided. The procedure necessary under the two methods is as follows:

Methods of Computing Inventories at End of Period

Cost Inventory Method	Retail Inventory Method
1. Merchandise on hand at (*a*) cost, or (*b*) cost or market, whichever is lower, according to the method used by the merchant. Materials on hand in manufacturing departments should be included.	1. The cost equivalent of the retail value of the merchandise on hand. The cost equivalent is obtained by applying to the retail value of the inventory the complementary cost rate of the average percentage of purchase mark-up; *i.e.*, the percentage rate reached by subtracting the latter from 100 per cent.
2. Average rate of freight, express, and cartage inward for the period, wherever the figure is obtainable, applied to (*a*).	2. Materials on hand in manufacturing departments.
3. Manufacturing payroll and materials involved in work in process, unfinished jobs which have not been transferred from a manufacturing to a selling department.	3. Manufacturing payroll and materials involved in work in process, unfinished jobs which have not been transferred from a manufacturing to a selling department.

The Cost Inventory Method.—The inventory under the cost method is taken at billed cost by the use of a code system of

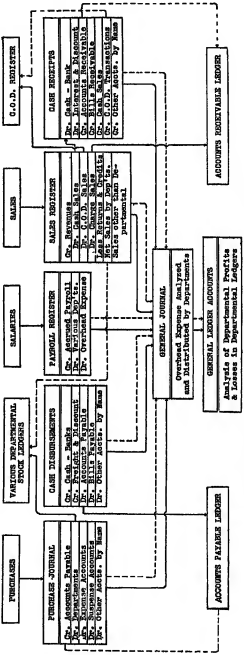


FIG. 5.—Chart of accounting books and records—department store.

marking all merchandise sent to the selling departments. Provision must be made under this method for the reduction of the original cost of the merchandise by the amount of depreciation actually incurred through mark-downs of merchandise remaining on hand at inventory time. To include the merchandise at original cost price would be to incorporate a fictitious element of profit in the profit and loss statement of the season affected. Under this method it is necessary to value the merchandise at the current market price of a similar grade, but this is not always possible, due to the fact that merchandise of this type or class may have disappeared from the channels of trade. This is also true of seasonal merchandise, the market value of which must be determined through the knowledge and experience of the merchant. This value may best be ascertained by using a figure which bears the same relation to the present retail price of the article that the original invoice cost bore to the original retail price. To do this under the cost inventory method is only to do that which the retail inventory method does automatically, and there can scarcely be any valid objection to such procedure.

The Retail Inventory Method.—The retail method of taking inventory has been laid down by the government in Treasury Decision 3058 issued August 16, 1920, as follows:

Regulations 45 are hereby amended by inserting Art. 1588, reading as follows:

Art. 1588. *Inventories of Retail Dry Goods Dealers.*—(1) Retail dry goods dealers who employ the "retail method," which is essentially a "cost" method of valuing inventories, will be permitted to make their returns upon that basis, provided (*a*) that the use of such method is designated upon the return, (*b*) that accurate accounts are kept, and (*c*) that such method be adhered to in subsequent years, unless a change is authorized by the Commissioner. The "retail method" consists in computing the "cost" of goods on hand from the "percentage of purchase mark-up" and the "retail value" of goods on hand.

(2) A taxpayer employing the "retail method" of valuing inventories shall maintain and preserve in permanent form, for the inspection of internal revenue officers, the accounts and records of each year, together with a schedule of all mark-downs in each department, and such mark-downs shall not be included in the computation of the retail value of goods on hand unless the goods so marked down have been actually sold.

(3) The following general plan of taking an inventory by the "retail method" will, it is believed, be found readily adaptable to the requirements of most retail dry goods dealers:

(*A*) The *percentage of purchase mark-up* is computed as follows: The value of all merchandise, as received, is recorded by departments at two prices, (*a*) invoice cost plus transportation, and (*b*) original retail sale price. These cost and retail values are accumulated as recorded during the year. The total retail value minus the total cost value equals the total purchase mark-up, which divided by the total retail value gives the percentage of purchase mark-up.

(*B*) The *retail value of goods on hand* is computed as follows: A record is kept of (*a*) the amounts of all sales at retail, (*b*) any variations from the inventory prices of the preceding year of goods carried over from that year, and (c) any variations from the original sale prices, such as subsequent mark-ups or mark-downs (note paragraph (2)). The retail value of the opening inventories plus the retail value of the purchases (plus or minus the algebraic sum of all subsequent mark-ups, and mark-downs in the case of goods actually sold) minus the retail value of the sales equals the retail value of the book inventory of goods on hand. Physical inventories by departments are taken of goods on hand at retail at the close of the taxable year, and the retail value of the book inventory of goods on hand is adjusted accordingly.

(*C*) The *cost of goods on hand* is computed by subtracting from 100 per cent the percentage of purchase mark-up, which gives the percentage of cost, and multiplying the retail value of goods on hand by such percentage of cost.

The retail method is further explained in a letter sent from the Treasury Department on January 21, 1921, to the National Retail Dry Goods Association, as follows:

Reference is made to your letter of January 13, 1921, relative to Treasury Decision 3058, issued August 16, 1920 (Art. 1588—Inventories of Retail Dry Goods Dealers), asking for further details as to proper procedure within the meaning of the Regulations. Your questions are taken up and answered in the order that you have presented them:

1. The use of the retail method is by the decision confined to retail dry goods dealers. Other organizations and individual stores who conduct retail establishments and follow essentially the retail method of dry goods stores may be allowed this method upon application to the Bureau of Internal Revenue.

2. *The Designation of the Method as a "Cost" Method.*—It was not intended that the apparent limitation should be inflexible. It is recognized that on a constant or rising market the retail method is approximately a "cost" basis and that on a falling market it results in a reduction to "cost or market, whichever is lower."

3. *Preserving Records.*—There must be a permanent form of recording, by departments, purchases, showing the firm name, date of invoice,

invoice cost, and retail sales price. A permanent record must be kept of the accumulation of all department purchases, mark-downs, sales, stocks, etc. It must be borne in mind that under no circumstances will arbitrary standard percentages of purchase mark-up be allowed in the determination of the "cost" or "cost or market" value of retail inventories, but that such percentage must be the purchase mark-up percentage disclosed by the department records of the fiscal period for which the return is made.

4. *Opening Inventory.*—In section (*A*) the words "the value of all merchandise as received" are inclusive of inventory at the beginning of the period. The purchase mark-up must be computed as follows:

Cost:	Inventory at cost at beginning.	Retail:	Inventory at sales price.
	Purchases at cost.		Purchases at sales price.
	Transportation.		

5. *Appreciation in Retail Values of Goods on Hand.*—Within the meaning of the article, it is proper to include as a part of "original retail sales price" the actual increase in the original sales price which has been brought about by market conditions or by incorrect pricing when the goods were put into stock.

For the convenience of the examining officer, a special form should be provided; complete information by items of the increases from the original retail must be shown; reference, if possible, must be made to the original invoice; entry and the reason for the increase freely explained. All such amended retail increases must be approved by the buyer of the department and merchandise manager or other responsible official and they should be so filed that quick reference to them may be made. Entry of such increased retail properly belongs in department purchase books, although it may be set up as a separate item in the accumulated records of the department. The same forms that are used to record such price increases should not be used for mark-downs and in no instance will a store be allowed to include as retail increases a mark-up which has been taken as a correction or cancellation of a mark-down; such mark-up must be regarded and treated in all cases as opposite to mark-down.

6. *Proper Mark-downs Substantiated by Record of Facts Will Be Permitted.*—The decision is not intended to disturb the procedure in stores which have properly handled mark-downs, but instances where arbitrary reductions from retail values have been made because of the desire to provide for depreciation and obsolescence with no actual offering to the public of the goods on which the mark-downs were claimed cannot be recognized. Under no circumstances will a store be allowed to depreciate its stock in any way except by the offering of it to its customers at such reduced prices. The procedure of stores in regard to mark-downs will be deemed proper if in any fiscal year or period of that year the goods so marked down are in proportion to current sales, to stock on hand, to

mark-down of preceding months of preceding year, or if evidence can be submitted as to market changes which have forced a reduction in retail prices necessary to bring about a parity with the selling price of the same goods which have been purchased or could be purchased at a reduced cost.

In conclusion it should be noted that a store that has employed its retail method in the past may now specify in the return that such method is used, as a basis on valuing inventories, regardless of the fact that in past years it reported on a "cost" or "cost or market, whichever is lower" basis. However, the use of the retail method will not be recognized unless it has been correctly followed throughout the entire fiscal or calendar year period for which the return is made.

FORMULA FOR COMPUTING VALUE OF INVENTORIES BY RETAIL METHOD

Department No. 5	Cost of Merchandise	Retail	Selling Price	Mark-up	Per Cent of Mark-up
Inventory (Beginning of Period)	$11 500 00		$17 250.00	$ 5 750.00	0.3333
Purchases	25 650.00		44 374.50	18 724.50	0.4219
Transportation Inward	256.50				
Total	$37 406.50		$61 624.50	$24 474.50	0.3971
Net Sales		$51 250.00			
Mark-downs, less Cancellations		1 050.00	52 300 00		
Inventory (End of Period)	5 621.74[1]		$ 9 324.50	$ 3 702 76	0.3971
Gross Cost of Merchandise Sold	$31 784.76				

[1] 100 per cent (retail inventory, $9,324.50) − 39.71 per cent (mark-up, $3,702.76) = 60.29 per cent (value of inventory (at end of period), $5,621.74).

Liability and Proprietorship Accounts.—The liability and proprietorship accounts of a department store do not differ in nature or character from those of any mercantile establishment, and therefore present no unusual accounting or auditing problems.

Balance Sheet.—The balance sheet of a department store does not differ from that of any other mercantile establishment in the character or arrangement of its accounts. The assets should be exhibited with due regard to the liquidity of the various classes, and the liabilities with due regard to the priority of their respective claims to the assets. Comparison should be made with previous balance sheets, and fluctuations in the assets and liabilities commented upon. A typical standard form of a balance sheet for a department store is as follows:

NAME OF COMPANY

Balance Sheet

As of.......................... 19....

Assets			Liabilities and Capital		
Current:			Current:		
Cash	$.. ...		Notes Payable	$......	
Customers' Notes	.. ...		Accounts Payable	....	
Customers' Accounts	......		Reserve for Federal Taxes	....	
Inventories	. ....	$	Accrued Wages	......	$......
Deferred Charges:			Valuation Reserves:		
Prepaid Insurance	$		Bad Debts	$... ..	
Other Prepaid Expenses	. ....	......	Depreciation	..	......
Fixed:			Capital:		
Real Estate	$.... .		Capital Stock	$......	
Buildings	.....		Surplus	......	......
Machinery	. ....				
Delivery Equipment	......	......			
Total Assets		$......	Total Liab. and Capital		$......

Expenses.—The classification and distribution of overhead expense constitute one of the important, if not the most important, item entering into the accounting for department stores, and, unless properly handled, may vitally affect the net results of a department or business. The final allocation of overhead is in the form of a just and proportionate burden upon the selling, alteration, and manufacturing departments. To take the sum total of all overhead *en bloc* and arbitrarily segregate it to the operating departments does not disclose true conditions and has only the ease of manipulation in its favor—nothing further. Each cost factor should be specifically considered and subsequently allocated to each operating department it vitally affects.

The first factor in the distribution of overhead expense is the classification of the 14 major divisions of overhead expense into which all items of overhead expense normally fall. The following classification of the major divisions of overhead expense items, shown in the form below, is arranged in the order of the relation of such items to a business, from the viewpoint of the volume of expenditure. The items form the basic accounts for the distribution of overhead expense.

The second factor in the distribution of overhead expense is the segregation of the major divisions into functional groups. The functional groups follow the natural functions of a store

and are arranged in the sequence of the usual organization procedure, as follows: (1) administrative—all items chargeable to administration; (2) occupancy—all items applicable to buildings or space occupied and their maintenance; (3) publicity—all items applicable to advertising; (4) buying—all items applicable to the purchase of merchandise and the preparation of it to be placed on sale; (5) selling—items applicable to the disposition of merchandise to customers, including delivery. The form shown below presents the method of segregating the 14 major divisions of expense into the five functional groups.

Segregation of the Major Divisions of Overhead Expense into Functional Groups

Major Divisions		Functional Groups				
Description	Amount	Administrative	Occupancy	Publicity	Buying	Selling
1. Salaries and Wages	$......	$......	$......	$......	$......	$......
2. Rentals	......	nil	......	......	......	......
3. Advertising	......	nil	nil	......	nil	nil
4. Taxes	......	......	......	nil	......	nil
5. Interest	......	......	......	nil	nil	nil
6. Supplies	......	......	......	......	......	......
7. Service Purchased[1]	......	nil	......	nil	nil	......
8. Unclassified	......	......	......	......	......	......
9. Traveling	......	......	......	......	......	......
10. Communication	......	......	......	......	......	......
11. Repairs	......	......	......	nil	nil	......
12. Insurance	......	......	......	......	......	......
13. Depreciation	......	......	......	nil	nil	......
14. Professional Services	......	......	......	......	nil	......
Total	$......	$......	$......	$......	$......	$......

[1] Light, heat and power, and delivery.

Distribution and Proration of Overhead Expenses.—The third factor in the distribution of overhead expense is the proration and distribution of the five functional groups over the selling, manufacturing, and alteration departments, on the following bases:

A. Volume of sales.
B. Volume of cost purchases.
C. Average stock.
D. Value of space occupied.
E. Space used.
F. Packages delivered and returned.
G. Value of equipment used.
H. Cost of work.

All expenses, however, should be charged direct, wherever possible, to the departments to which they apply, keeping in mind that the five functional group classifications should be preserved. For example, should the circular advertising (publicity) department get out advertising matter for the millinery

DISTRIBUTION OF OVERHEAD EXPENSE OVER SELLING, ALTERATION AND MANUFACTURING DEPARTMENTS

FUNCTIONAL GROUP CLASSIFICATION	Basis	Total Overhead Expense	Various Selling Departments					Altera-tion Dept.	Manufact-uring Dept.
			Dept. 1	Dept. 2	Dept. 3	Dept. 4	Dept. 5		
ADMINISTRATIVE:									
Executive Offices	A								
Accounting Offices	A								
Credit Offices	A								
Superintendency	A								
General Store:									
Taxes	C								
Int. on Mdse. Investment	C								
Ins. - Fire and Mdse.	C								
All Other Items	A								
OCCUPANCY:									
Building Maintenance:									
Supervision	E								
Operating:									
Selling, Alteration, Mfg.									
& Window Depts.	D								
Taxes	G								
Int. on Fix. & Equip.	G								
Ins. on Fix. & Equip.	G								
Depre. on Fix. & Equip.	G								
Elev. Operators' Wages	H								
Repairs - Fix. & Equip.	H								
All Other Items	E								
Warehouse:									
Rentals	D								
All Other Items	E								
Light, Heat & Power	E								
PUBLICITY:									
Advertising:									
General	A								
Circular	A & H								
Display:									
Windows	D								
Interior Decoration	A & H								
BUYING:									
Merchandising:									
Merchandise Office	B								
Merchandise Comparison	B								
New York Office	B								
Foreign Office	B								
Receiving and Marking	B								
Stock Rooms	B								
SELLING:									
General Selling	A								
Adjustment	A								
Mail & Telephone Orders	A								
Delivery:									
Shipping Room	F								
Garage and Automobiles	F								
Wagon Delivery	F								
Special Delivery	F								
Total Charges to Dept's									

FIG. 6.—Distribution of overhead expense—department stores.

department, a cost should be kept and accordingly charged and eliminated from the total expense of the circular advertising department, prorating the balance. All expenses, therefore, chargeable to the service departments are applicable to the operating or income-producing departments on a cost or prorated basis, as indicated in the form (Fig. 6) under the caption "Basis"

by the use of symbols which represent the bases mentioned above.

Income.—The net sales constitute the principal income item, out of which all items of cost or overhead expense must be met. This item is taken as 100 per cent, or the figure upon which all subsequent percentages are calculated. Some department stores lease, to outside parties, certain sections of their store, from which they derive a certain amount of revenue, depending, of course, upon the successful operation of these sections.

Gross sales should be credited at selling price with all sales of merchandise purchased for resale at a profit and of merchandise manufactured in whole or in part by the retailer for sale at a profit, with alteration charges collected from customers, and receipts of restaurants and personal service departments, and only those.

The gross sales of owned departments should be shown separately, and should be subdivided into their constituent elements, such as cash sales, charge sales, C. O. D. sales, and "will-call" or "lay-away" sales. These in turn should be shown by departments in a subsidiary record, if the business is departmentalized.

The gross sales from leased sections should also be shown separately, since the operations of leased sections are similar to the operations which constitute the store's principal line of activity.

Profit and Loss Statement.—The profit and loss statement of a department store, due to its composite or multiple-phase nature, is probably more important for close analysis and study by the management than is the statement of a single-phase business, because the department store is made up of many different stores, each conducted as a single unit, and, at the conclusion of the accounting period, merged into one.

The analytical portion of the report should deal with each department separately and combined, and should show the proportion of the various departmental expenses to the turnover and to the sales; the percentage of profit on the turnover, and to the sales; and the percentage of selling expenses to the turnover, and to sales. This section should be followed by such judicious remarks and suggestions as may be appropriate. The percentages of previous annual reports should be compared with the present percentage. Comparison should also be made with the previous inventories, and any change in the assets or liabilities as shown in the previous reports should be commented on.

NAME OF COMPANY

Profit and Loss Statement

For Period Ending............19....

Gross Sales		$......	
Less Returns and Allowances		......	
Net Sales			$......
Cost of Sales:			
Merchandise:			
Inventory (Beginning of Period)	$......		
Freight, Express, and Cartage In	......		
Purchases (Net)	......	$......	
Deduct Inventory (End of Period)		......	
Gross Cost of Merchandise Sold		$......	
Add Cost of Alterations		......	......
Gross Profit on All Sales			$......
Operating Expenses:			
Administration:			
Executive Office	$......		
Accounting Office	......		
Credit Office	......		
Superintendency	......		
General Store	......	$......	
Occupancy:			
Supervision	$......		
Operating	......		
Housekeeping	......		
Protection	......		
Warehouse	......		
Light, Heat, and Power	......	......	
Publicity:			
General Advertising	$......		
Circular Advertising	......		
Windows	......		
Interior Decoration	......	......	
Buying:			
Merchandise Office	$....		
New York Office	......		
Foreign Office	......		
Receiving and Marking	......		
Stockrooms	......	......	
Selling:			
General Selling	$ ...		
Adjustments	......		
Mail and Telephone Orders	......		
Shipping Room	. .		
Garage and Trucks	......		
Wagon Delivery	......		
Special Delivery	......	......	......
Net Profit on Operations			$......
Non-operating Items:			
Income:			
Discounts on Purchases	$......		
Interest Received	......	$......	
Expense:			
Discount on Sales	$......		
Interest Paid	......		
Doubtful Accounts Receivable	......	......	......
Net Income for Period			$......
Appropriation:			
Income Taxes		$......	
Proportion of Organization Expense		......	......
Additional Surplus			$......

As a rule, most department stores close their books twice a year, at the close of the spring and fall seasons. Therefore, in comparing the operations of different departments for different periods comparison should always be made between the same season in different years, and not between two seasons in the same year, since the spring and fall seasons differ considerably in the character and volume of the business transacted.

Special Auditing Features.—The accounts of a department store are usually subjected to a fairly efficient internal audit by its own auditing department, thus, to a certain extent, preventing the possibility of theft and defalcation. The internal audit provides for abstracts from all charge slips before the charge tickets reach the accounting department, and summaries of cash and other credits, before such credits are reported to the accounting department. The accounting department is, therefore, held accountable for all charges and the cashier's department for all cancellations of charges. The failure of the books and cash to reconcile with the detailed records of the audit department discloses irregularity, and the discrepancy can usually be traced, for the reason that a record has been made and preserved for every item. The detail work done by the auditing department is of considerable volume. Therefore, the professional auditor should not be expected to go back of the summaries prepared by this department. Comparison should be made, however, between the various summaries and the general books.

The auditor should examine closely the system of handling C.O.D.'s in order to reduce the possibility of fraud. Controlling accounts will be found helpful for this class of items. The volume of purchases will not permit an audit of even a small part of the invoices, but a close examination should be made of the system of approving and verifying invoices. The plan for guarding against shortages and defective goods in the receiving department, and the provisions made for freight and discount deductions, should be investigated.

Care should be exercised to see that the plan of distributing the overhead expense is such that no department will be unduly burdened with the expenses of others. Accounts receivable should be aged and proper reservation made for past-due accounts. Inventories must be examined as to quantities, prices, and

values, and proper depreciation set up for unsalable merchandise. The various cash funds in the hands of cashiers must be verified by actual count. A control should be maintained through the general books of all department accounts, and an investigation made of departmental operations and profits. Any unusual variations in the major expenses or the functional groups between periods should be investigated.

CHAPTER III

COTTON MILLS

Nature of Business.—The cotton industry of the United States, which ranks foremost among the largest of the American industries, may be divided into two groups. The northern mills, or first group, have the advantage of hiring skilled and reliable labor and the use of all grades of cotton selected from all parts of the earth, thereby making a much greater variety of product than the southern mills. The second group, or southern mills, are usually dependent on unskilled labor and the cotton grown in their vicinity. The rapid growth of the cotton industry, especially in the South, is shown by the following table, which presents the spindlage of the United States in units of a million spindles.

	1880	1890	1900	1910
North	10.1	12.6	14.5	17.4
South	0.5	1.7	4 5	11.2

As the cotton costs are computed on the basis of the weight of cotton entering and emerging from each manufacturing process, a knowledge of the mechanics of the industry is a necessity to accountants. Almost all cotton comes to the mill in the form of bales compressed to about 22 pounds per cubic foot. After the iron hoops and jute bagging are removed, the bales, consisting of about 500 pounds of cotton, are fed by hand into the feed apron of a machine, called the "bale breaker," which loosens the compressed cotton and forms it into tufts, about a handful in size, on a belt conveyer. The belt conveyer delivers these tufts into machines called "openers," which are similar to the "bale breakers," the function of which is to reduce the large tufts into smaller ones and remove a certain amount of foreign matter.

The small tufts are delivered by an air chute to the picker room, in which there are three kinds of machines, known as "pickers." The first, or "breaker-picker," beats out the coarser impurities by pounding the tufts over grid bars, by means of rollers armed with short, flail-like projections, and then compresses them into a

continuous sheet, or "lap." This sheet, or lap, is wound on a large spool and delivered to the second, or "intermediate" picker. This machine practically repeats the operation of the first machine, and then combines the four laps from the first picker into one lap, which it delivers to the last, or "finished picker." The latter again takes four intermediate laps and forms them into one sheet, or lap. The pickers are all set to make a standard 48-yard lap.

The laps from the finished picker are fed to machines called "cards," which disentangle and arrange the fibers in parallel rows. This machine removes most of the remaining dirt, by placing the cotton on a revolving cylinder bearing wire teeth, which draws it over a set of knives and passes it on to a large cylinder armed with millions of fine wire teeth. The latter carries the cotton past a slowly revolving chain of flats and on to a smaller rapidly revolving roller, called the "doffer," from which it is taken by the "doffing comb," passed through a funnel, and condensed into a single untwisted rope, called a "sliver." The sliver, which is less than an inch in diameter, is automatically coiled into a can, not unlike an umbrella stand, as it emerges from the machine. Up to the sliver stage, all operations are practically identical, regardless of the kind of yarn to be spun. From here on the processes may vary, ordinary coarse and medium yarns being simply drawn and reduced, and the fine yarns requiring additional combing.

The drawing of ordinary coarse and medium yarn (the object of which is to draw out the fibers and to cause them to be parallel to each other), is done by feeding six "card slivers" simultaneously between two pairs of rollers, the second of which revolves faster than the first. This operation is usually performed three times, in each case combining six slivers into one, the final sliver having the same diameter as the original card slivers, but containing more parallel fibers. The sliver delivered by the third "drawing machine" is reduced in size and twisted in "roving frames." The first roving frame, or "slubber," passes the "drawn sliver" through rollers without combining, and twists it as it winds it on bobbins. The slightly twisted sliver, called a "roving," is about the size of a clothes line. The three other roving machines, the "intermediate," "fine frame," and "jack frame," are much the same as to mechanism, each combining two rovings into one of smaller size and more twist, but in each

successive frame the spindles are smaller and revolve faster, thus reducing the thread until it is small enough to spin.

When fine yarn is desired, 20 card slivers are combined in a machine similar to the draw frame, called a "sliver lapper," where they are drawn into a narrow ribbon, or laps, and spooled. Four of these laps are combined by a machine, called a "ribbon lapper," into a single band less then a foot wide. Eight rolls from the ribbon lapper are placed end to end, fed through rollers between the teeth of a very fine and rapidly oscillating steel comb, and then condensed into a single "combed sliver," which is coiled into a cylindrical can as it emerges from the machine. The combed slivers are usually passed through two drawing frames, each combining six slivers into one, and then they are put through the roving frames.

The combining of two or more laps, slivers, or rovings is known as "doubling," the process serving to counterbalance inequalities in the cotton. The roving as it leaves the jack frame has been doubled 27,648 times if the cotton has not been combed, and 2,959,120 times if the cotton has been combed. Instead of being spun on "mules," as would be done in Europe, the rovings are run through a "ring frame," very similar in principle to the roving machines, and wound on bobbins.

There are two kinds of yarn, "filling," or yarn which goes crosswise of the cloth, and "warp," or yarn which goes lengthwise of the cloth. The separation is made at the intermediate roving machine, filling yarn being drawn and twisted less than warp. Filling is ready for the loom as soon as spun, while warp is sometimes "twisted" (two or more threads being united) and "sized" (run through a bath of beeswax, starch, etc., and dried quickly on the steam-filled drum of the "slasher"). The vast majority of cotton mills do both weaving and spinning, 83 per cent of the entire number of spindles in the United States and 97 per cent of the looms being in mills performing both operations.

Organization.—The president of a cotton mill is not usually the chief directive force—he acts as the chairman of the board of directors. The treasurer performs the two all-important functions of buying the raw cotton and selling the product. The treasurer may have an office either at the mill, as in the grey-goods mills of New Bedford and Fall River, or in the office of a selling house of which he is a member. In the latter case, the same treasurer usually acts in that capacity for more than

one mill, each mill being managed by a superintendent, known as an "agent." The organization chart (Fig. 7) presents in diagrammatic form a typical organization of a cotton mill.

Legal Status.—Cotton mills have no legal peculiarities other than their contractual relationships. The trading device, called the "hedge," is an insurance against fluctuations in cotton prices by the purchase or sale of future contracts for cotton against sale or purchase made for actual delivery. As the cotton mill sells the finished product for future delivery based on the current price of cotton, it can buy futures now, and any loss or gain made on the actual purchase of the cotton will be offset

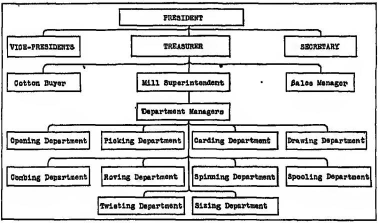


FIG. 7.—Organization chart—cotton mill.

by the gain or loss made when it sells the future contracts. Assume, for instance, that a cotton mill sells yarn at a price based on the current cotton price of 25 cents in July for October delivery. The mill would then buy October futures on the Exchange. If the price of cotton rises 5 cents, the mill will lose on its cloth contract but will gain an equal amount when it sells its October futures. The loss or gain on hedging is a cost of raw cotton, a fact recognized by the income tax authorities in the Committee of Appeals and Review Memorandum No. 135 (Section 203, Article 1582, 31-21-1750).

Accounting Books and Records.—The outstanding features of the accounting books and records of a cotton mill are the unusual

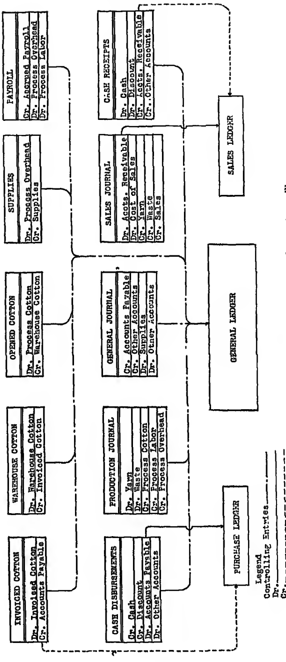


FIG. 8.—Chart of accounting books and records—cotton mill.

importance given to invoiced cotton (because cotton is paid for within three days from date of receipt) and the usual failure to book interdepartmental transfers of partly finished product. While labor and overhead are usually divided into departmental accounts, the departmental accounts are all closed into the yarn account, and the cost of the various kinds of yarn then computed on one of the following bases: (1) the "average number" of the yarns produced, (2) the "theoretical ratio of production" of the yarns produced, and (3) the "number of spindles employed." Each of these bases will be discussed later. Some cotton mills follow the product from one process to another, but this is not the usual practice.

Figure 8 presents in diagrammatic form the accounting books and records used in a cotton mill. These are arranged and connected so as to show the functions of each, the course of the entries from one to another, and the general relation each bears to the other and to the system as a whole.

Material Costs.—Material costing requires careful attention to consumption and production weights. As the length delivered by each process is based on delivery roll circumference, speed, and running time, the weights can be computed by means of occasional tests to determine the weight per yard. Loss or gain on hedging contracts, a practice discussed above under the caption "Legal Status," is a cost of cotton.

There are two kinds of cotton waste: (1) visible, or cotton unfit for the making of yarn, yet having a sales value, and (2) invisible, or the intangible loss due to the evaporation of water content and the elimination of impurities. The cost of the cotton consumed is the cost of the opened cotton less credits for the sales of the waste. The adjustment for waste, as made by most cotton mills and by all agents of the Tariff Board, constitutes the final step in mill-cost production. Visible waste reduces both the poundage and value, while invisible waste reduces only the poundage of the product manufactured. The mathematics involved in invisible and visible waste is shown by the following statement:

	Pounds	Value	Value per Pound of Yarn Made
Goods in Process, Initial Inventory	20 000	$ 2 000	$0 005
Cotton Put in Process	450 000	80 000	0.200
Total	470 000	$82 000	$0.205
Visible Waste Sold	40 000	$ 2 400	$0.006
Invisible Waste	5 000		
Goods in Process, Final Inventory	25 000	5 600	0.014
Total	70 000	$ 8 000	$0.020
Yarn Made—Cotton	400 000	$74 000	$0.185
Yarn Made—Labor		16 000	0.040
Yarn Made—Overhead		6 000	0.015
Total Cost of Yarn Made	400 000	$96 000	$0.240

If the product is passed from one process to another, an estimated value should be credited to the process and debited to a waste account; and then, if the actual sales of waste do not conform to the waste account, after adjustments for inventories, an adjustment should be made to the Profit and Loss account. The effect of waste on costs, if the product is followed from one process to another, is shown by the following illustration:

	Weight, Pounds	Cotton		Labor		Burden	
		Total	Cents per Pound	Total	Cents per Pound	Total	Cents per Pound
Opening, picking, carding Waste	10 000.0 500.0 Cr	$2 000.00 60.00 Cr.	20.000 .421	$ 28.50	0.300	$19.00	0.200
Drawing	9 500.0	$1 940.00	20.421	$ 28 50 6.65	0.300 0.070	$19.00 95	0.200 0.010
Roving Waste	9 500.0 558.7 Cr.	$1 940.00 23.00 Cr.	20.421 1.018	$ 35.15 292.19	0.370 3.268 0 023	$19.95 29.08	0.210 0.332 0.013
Spinning Waste	8 941.3 178.8 Cr.	$1 917.00 5.00 Cr.	21.439 0.381	$327.34 262.88	3.661 3.000 0.075	$49.63 30.67	0.555 0.350 0.011
Total	8 762.5	$1 912.00	21.820	$590.22	6.736	$80.30	0.916

SUMMARY OF WASTE

Processes	Cents per Pound			
	Cotton	Labor	Burden	Total
Opening, etc.	0.421			0.421
Drawing				
Roving	1.018	0.023	0.013	1.054
Spinning	0.381	0 075	0.011	0.467
Total	1.820	0.098	0 024	1.942

The average per cent of waste in the various processes is given below:

	Per Cent		Per Cent
Breaker lapper	5	Ribbon lapper	Negligible
Intermediate lapper	2	Comber	20
Finisher lapper	2	Draw frame	Negligible
Card	5	Roving frame	2
Sliver lapper	Negligible	Spinning frame	4

Inventories.—As many cotton mills calculate costs on the assumption that the conversion cost of each pound of cotton in process is one-half of the conversion cost of each pound of yarn, this method of valuing inventories is worthy of consideration. As an illustration, calculate the value of the final inventories from the following information:

Raw Cotton Purchased (480 000 pounds)	$ 81 600
Sales of Yarn (480 000 pounds)	175 000
Sales of Waste (45 000 pounds)	1 000
Productive Labor	30 000
Factory Overhead	8 020
Losses on Hedging Contracts	2 400
Initial Inventories:	
Raw Cotton (120 000 pounds)	30 000
Goods in Process (100 000 pounds):	
Cotton	25 000
Conversion Costs	5 000
Yarn (40 000 pounds)	10 000
Waste (1 000 pounds)	20
Final Inventories:	
Raw Cotton (100 000 pounds)	?
Goods in Process (60 000 pounds)	?
Yarn (50 000 pounds)	?
Waste (2 000 pounds at market value)	40

COTTON ACCOUNT (Schedule A)

	Pounds	Value	Per Pound
Raw Cotton, Initial Inventory	120 000	$ 30 000	$0 25
Cotton Purchased	480 000	81 600	0.17
Loss on Futures		2 400	
	600 000	$114 000	0.19
Raw Cotton, Final Inventory	100 000	19 000	0.19
Cotton Fed during Period	500 000	$ 95 000	0.19
Cotton in Process, Initial Inventory	100 000	25 000	0 25
Cotton to be accounted for	600 000	$120 000	0 20
Cotton in Yarn Produced	490 000	98 000	0 20
	110 000	$ 22 000	0.20
Cotton in Process, Final Inventory	60 000	12 000	0.20
Waste, Visible and Invisible	50 000	$ 10 000	0.20

PRODUCTION STATEMENT (Schedule B)

	Pounds
Yarn:	
Sales	480 000
Final Inventory	50 000
	530 000
Less Initial Inventory	40 000
	490 000
Goods in Process:	
One-half Final Inventory	30 000
Total	520 000

CONVERSION COSTS (Schedule C)

Productive Labor			$30 000
Factory Overhead			8 020
Conversion Costs in Initial Inventory:			
Goods in Process			5 000
Waste:			
Initial Inventory	$ 20		
Current Period (Schedule A)	10 000	$10 020	
Less Inventory (Final)		40	
		$ 9 980	
Less Sales of Waste		1 000	8 980
Total			$52 000

$52 000 ÷ 520 000 = $0.10, Conversion Cost per Pound

YARN INVENTORY (Schedule D)

	Per Pound
Cotton Cost (Schedule A)	$0.20
Conversion Cost (Schedule C)	0.10
Total	$0.30

50 000 × $0.30 = $15 000, Final Inventory

GOODS IN PROCESS INVENTORY (Schedule E)

	Per Pound
Cotton Cost (Schedule A)	$0 20
One-half Conversion Cost (Schedule C)	0.05
Total	$0.25

60 000 × $0.25 = $15 000, Final Inventory

The division of the inventories of goods in process into two sections, cotton cost and conversion cost, while theoretically correct, is frequently ignored in practice, as the division is rendered unimportant by the fact that the conversion costs per pound and the poundage of goods-in-process inventories do not vary materially between accounting periods. If the division is not made, the entire cost of both inventories would be entered in Schedule A, and the conversion costs in the initial inventory of goods in process would not be entered in Schedule C.

Some cotton mills, using the plan of estimating that the conversion costs of goods in process is a fractional part of the conversion costs of the completed goods, use the fraction one-fourth, instead of one-half.

Labor and Overhead Costs.—After being charged to the various manufacturing processes, the labor and overhead costs are combined and prorated to the various kinds of yarn on one of the following bases: (1) the "average number" of the yarns produced, (2) the "theoretical ratio of production" of the yarns produced, and (3) the "number of spindles employed."

Average-number Method—The numbering system for cotton yarn is based on the number of hanks of 840 yards of yarn to a pound, *viz.*, 1 hank of No. 1 yarn weighs 1 pound; 20 hanks of No. 20 yarn weighs 1 pound; 30 hanks of No. 30 yarn weighs 1 pound, etc. Assume that 12,500 pounds of No. 20 yarn, 10,000 pounds of No. 25 yarn, and 17,500 pounds of No. 40 yarn were put through a process at the total labor and overhead cost of

$144. The conversion costs would be prorated, according to the average-number method, as follows:

Yarn No.	Pounds	Equivalent of No. 1 Yarn
20	12 500	250 000
25	10 000	250 000
40	17 500	700 000
	40 000	1 200 000

1 200 000 ÷ 40 000 = 30, average number.
$144 ÷ 40 000 = 0.36 cents per pound of average number.
36 cents ÷ 30 = 0.012 cents per pound of No. 1 yarn.

Yarn No.	Multiplier	Cost per Pound, Cents
20	0.012	0.24
25	0.012	0.30
40	0.012	0.48

Care must be taken, if costs of multiple-ply yarns are computed with single-ply yarn, to reduce all yarn to its single-ply equivalent, *i.e.*, a $\frac{2}{20}$ yarn (two strands of No. 20 twisted together) would be taken as a single-ply No. 10.

Theoretical Ratio of Production Method.—The above problem in prorating conversion costs would be calculated on either of the following methods by the "theoretical ratio of production" basis.

Method No. 1

(1) Yarn No.	(2) Pounds Produced	(3) Theoretical Production	(4) Quotient (Col. 2 ÷ Col 3)	(5)[1] Multiplier	(6) Conversion Cost	(7) Cost per Pound, Cents
20	12 500	100	125	$0.24	$ 30	0.24
25	10 000	80	125		30	0.30
40	17 500	50	350		84	0.48
			600		$144	

[1] Sum of Col. 6 divided by sum of Col. 4, *i.e.*, $144 ÷ 600 = $0.24.

Method No. 2

(1) Yarn No.	(2) Theoretical Production	(3)[1] Cost Ratio	(4) Actual Production	(5) Equivalent of 20's (Col 3 × Col. 4)	(6)[2] Multiplier	Cost per Pound, Cents (Col. 3 × Col. 6)
20	100	1.00	12 500	12 500	$0.0024	0.24
25	80	1.25	10 000	12 500		0.30
40	50	2.00	17 500	35 000		0.48
				60 000		

[1] Let cost ratio of the yarn with smallest number equal unity; calculate other cost ratios by dividing the respective theoretical productions into the theoretical production of the yarn having the smallest number, *i.e.*, 100 ÷ 80 = 1.25.

[2] Cost of conversion divided by sum of equivalents, *i.e.*, $144 ÷ 60 000 = $0.0024.

Spindlage Method.—The same problem calculated by the "number of spindles employed" method would be as follows:

(1) Yarn No.	(2) Spindles Operated	(3)[1] Spindle Cost	(4) Conversion Cost (Col. 2 × Col. 3)	(5) Pounds Converted	(6) Cost per Pound, Cents (Col. 4 ÷ Col. 5)
20	20	$1.50	$ 30	12 500	0.24
25	20		30	10 000	0.30
40	56		84	17 500	0.48
	96		$144		

[1] Conversion cost divided by total number of spindles employed, *i.e.*, $144 ÷ 96 = $1.50

Balance Sheet.—The balance sheet accounts of a cotton mill vary in name only from those of ordinary factories, the nature of the accounts being the same as the corresponding accounts in other industries. The most unusual account is the asset account entitled "Hedging Contracts," which is set up at cost at date of purchase of the cotton futures and adjusted to market value on the balance sheet by a Reserve for Hedging Contracts account, which is established by debiting or crediting the Cotton account with the difference between the cost and market values of the cotton futures. When the cotton futures are sold, the Hedging Contracts and Reserve for Hedging Contracts accounts are closed into the Cash and Cotton accounts.

Profit and Loss Statement.—The profit and loss statement of a cotton mill is very similar to that of other departmentalized industries which do not follow the product through the manufacturing processes. While the names of the accounts are different, the manufacturing section of the profit and loss statement consists merely of the usual divisions: (1) Raw Materials (of course, headed Cotton), (2) Productive Labor (departmentalized), and (3) Manufacturing Expense (departmentalized).

Special Auditing Features.—Cotton inventories must be carefully verified by the auditor, special care being taken to account properly for consigned and hypothecated cotton. The process inventories are sometimes divided into major classifications, *viz.*, "fixed," or goods in the machines, and "loose," or the process cotton in laps and cans and on bobbins ready to feed. Some mills add a constant amount for the "fixed" process cotton to the value of the machinery, a practice which misclassifies the assets and, in case of a material change in the price of cotton, misstates the net income for the period. Process cotton

should be valued according to the varying stages of production, but many mills assume that the inventory is exactly one-half completed. Contracts for undelivered cotton purchases and unshipped yarn sales must be carefully examined and any contingent liabilities resulting therefrom booked. The classification of the payroll and of the factory overhead must be examined, and the proration of the conversion costs to the various kinds of yarns must be verified. The handling of waste and waste sales must be carefully examined, especially if the cotton mill carries the costs from one manufacturing process to another. This is especially important when it is desired to verify the production figures of the mill agent. The official's authority to buy cotton futures must also be verified. All losses or gains from "hedging" should be clearly ascertained and entered in the Cotton account.

CHAPTER IV

GREY-IRON FOUNDRIES

Nature of Business.—The manufacture of "grey-iron" or "cast-iron" castings may be classified under the "synthetic non-by-product" group of industries, by reason of the processes necessary to convert the raw material, "pig iron," into the finished casting, and the lack of any by-products of importance resulting from such conversion. Grey-iron foundries are distinguished from other types of foundries, such as malleable, steel, brass, etc., either by the metals employed or by the class of castings made.

The manufacture of grey-iron castings comprises the fewest and simplest operations by means of which pig iron may be converted into iron products suitable for use in structural or mechanical work. When grey-iron castings are further treated by an "annealing" process, they are known as "malleable" castings. While grey-iron castings are brittle, they do possess the strength qualities which are necessary to withstand steady pressure, and are useful for a great many purposes in which castings are not likely to be subjected to shock contacts.

The process by which grey-iron castings are produced involves the melting of pig iron in a cupola and the pouring of the molten metal into forms, known as "molds." The molds are prepared in wooden or iron frames, known as "flasks," from sand or loam, by workmen known as "molders." The molders use as their models wooden forms, known as "patterns," which are made from models, blue prints, or other specifications by workmen who are known as "pattern makers." A pattern once made can be used for the making of subsequent molds, but the use of the mold is limited to one casting only.

The operations necessary to produce grey-iron castings are economical, because of the ease of pouring the metal into desired shapes and forms when it is in a molten condition, requiring no modification or shaping by mechanical means, except that which is incidental to fitting the cast parts into a completed product.

The operation of a grey-iron foundry may be carried on as a distinct business, or, as is often the case, as an adjunct to an industrial plant which requires such castings in the manufacture and assembling of its product.

Organization.—The division of a grey-iron foundry into departments is the basis for its organization, as the methods of procedure in the different departments require widely varying functions, of the departmental heads. The organization of a grey-iron foundry is, therefore, simply its division into such

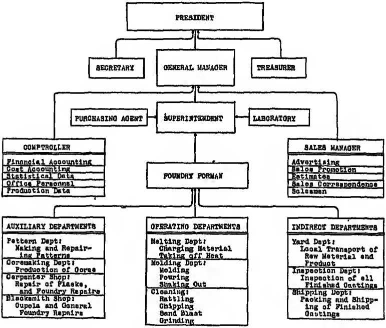


FIG. 9.—Organization chart—grey iron foundry.

departments as are required for the operation of the different functions and then the appointment of a competent personnel to operate these divisions. The chart (Fig. 9) illustrates a typical grey-iron foundry organization and grouping of functional activities, with an arrangement of authorities which is self-explanatory.

The functions of all departments other than the producing departments, as shown in the organization chart, are self-explanatory. The reverse is true in the producing departments,

because of the many operations and methoas employed in these departments to produce the finished casting.

The Melting Department.—The first manufacturing process in the production of grey-iron castings occurs in the melting department, where the raw material (pig iron) is melted in a cylindrical or slightly conical miniature blast furnace, called a "cupola." This melting process is accomplished by charging the cupola, through the hopper at the top, alternately with layers of pig iron and layers of coke, together with a certain amount of scrap, over iron, gates, and sprue resulting from previous melts and molding operations. Before the molten metal is withdrawn from the cupola, the floating waste, or "slag," as it is called, is run off from a spout above that from which the molten metal is withdrawn. This slag, while in the nature of a by-product, is of minor importance from a revenue-producing standpoint. It is sometimes disposed of to contractors building roads, walks, foundations, etc., for use in making concrete.

The melting of the metal is accomplished by igniting the first layer of the fuel at the bottom of the cupola and by the use of a forced draft. As the molten iron accumulates in the hollow at the bottom of the cupola below the blast pipe, it is drawn out at the lower spout from time to time into ladles, for conveyance to the molds arranged upon the foundry floor. It should be noted that the mixture of the metal charged into the cupola determines to a large extent the quality and quantity of castings produced, and is governed by the particular requirements of the product to be produced. The blacksmith department, while the principal auxiliary of the melting department, does additional repair work for other departments of the foundry.

The Molding Department.—The two major operations in the molding department are the making of the mold and the pouring of the molten metal into the mold. Molding may be defined as the process of making a reproduction of a given object by pouring metal into an impression made in sand from that object. To enable the molder to make an impression for a casting, it is necessary to use a pattern similar to the object required. The mold, or flask, is similar in appearance to a reinforced box divided into two sections, so constructed that both sections can be exactly fitted together. The upper half is called the "cope" and the lower half is called the "drag." Both the cope and the drag are filled with sand, and an impression is made in each with

a pattern of one-half the object. When both the cope and the drag are fitted together, the impression in the sand, in the center of the mold, resembles the finished casting. It is frequently necessary to employ the use of "cores" to produce hollow effects in the castings. These cores are placed in certain positions, in the impressions made in the mold, and produce the required hollow effects in the finished casting. After the impressions have been made in the cope and the drag, and the cores placed in each, the two halves of the flask are put together and are ready to be poured. A hole is placed at one end of the cope, from the top, through the sand, to the impression. It is through this hole, called a "gate," that the molten metal is poured into the impression. A similar hole is placed at the opposite end of the cope, called the "riser." As soon as the molten metal rises to the surface through the riser, the molder immediately stops pouring the metal into the mold.

It is apparent that the core-making and pattern departments, as well as the carpenter shop, are the principal auxiliaries of the molding department. The cores, produced in the core-making department, are made of sand and baked in ovens to retain their shapes. The pattern department makes the patterns for the castings, provided they are not furnished by the customers, and keeps them in repair, while the carpenter shop is mainly engaged in the making and repairing of flasks.

The Cleaning Department.—After the molten metal has cooled in the mold, the casting is removed from the sand in the flask and sent to the cleaning department. The function of the cleaning department is to remove all sand adhering to the casting, as well as all fins, sprue, gates, risers, etc. This is accomplished by the aid of sand blasts, air chisels, tumbling barrels, emery grinders, etc., depending upon the nature of the castings and the kind of foreign matter adhering to them. If any castings are found to be defective, they are also cleaned of all sand and returned to the melting department for remelting. The finished castings are inspected for imperfections, and if none are found they are sent to the shipping department for shipment to the customers. If the foundry is an adjunct to an industrial plant, the castings are sent to the storeroom.

Legal Status.—The legal status of grey-iron foundries does not differ materially from other industries of like nature. As in other manufacturing enterprises, it is usual to make con-

tracts for raw materials at current market prices for future delivery.

Accounting Books and Records.—The accounting books and records of a grey-iron foundry may be divided into two groups, which must articulate and interlock with each other to give correct financial and cost data. The financial records constitute the first group and are utilized for the purpose of recording all financial transactions. The second group, comprising the cost records, is controlled by the financial records and presents all information concerning the cost to produce castings (by various cost-finding methods), cost statistics, production data, etc.

Financial Records.—In view of the fact that the financial records do not vary from the general books of account used in other manufacturing enterprises which follow good accounting procedure, it will not be necessary to describe them. They comprise the usual cash receipts and disbursements records, purchase journal, sales book, accounts receivable and accounts payable ledgers, general journal and general ledger. Their relation to the cost records and the manner in which both groups of records articulate and interlock with each other are shown in Fig. 10.

Cost Records.—The second group, comprising the cost records, includes not only books for the recording and summarizing of cost data, but also various forms for collating and computing the various elements of cost, for entry in the cost records. Since the various forms for recording foundry costs are too numerous to be shown in Fig. 10, those of major importance will be described and explained in the following section, dealing with "Production Costs."

Production Costs.—*The Tonnage Method.*—In practice, three methods of obtaining foundry costs are used, *i.e.*, tonnage costs, class costs, and individual job-order costs. The first method is the least dependable when used for cost-finding purposes or in fixing selling prices; therefore, its use should be discouraged. To quote a leading authority on foundry costs, John P. Jordan:

> Even though a great many foundries still figure their costs on this basis, it was demonstrated long ago that a flat cost per pound is not only of no use, either in fixing selling prices or in aiding in managerial control, but is one of the most dangerous practices which anyone can follow in connection with foundry costs. It would be about as sensible for an automobile dealer manufacturing four sizes of automo-

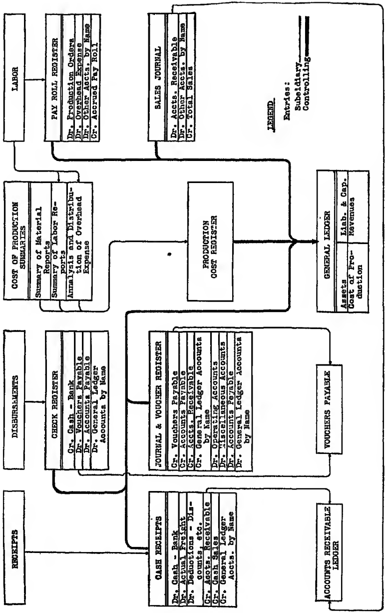


FIG. 10.—Chart of accounting books and records—grey iron foundry.

biles to find the flat cost per car, as it is for a foundryman to find a flat cost per pound, and expect that he is going to get any results other than a visit from the sheriff. In other words, it is very seldom that any two castings can be run with even approximately the same molding, coremaking or finishing cost. Therefore, it is impracticable to consider flat costs per pound.

The latter statement shows conclusively the fallacy of the argument that the tonnage cost method may be used by foundries producing castings of the same type of work and using the same patterns day after day. The reason for its general use is due, perhaps, to its ease of manipulation from a clerical standpoint.

Tonnage costs are determined by dividing the various expenses incident to the production of all castings, both direct and indirect, by the entire output of the foundry during the accounting period, in tons. From this result the average cost per hundred pounds is computed.

The Class Cost Method.—This method of cost finding is a refinement of the tonnage cost method and is generally used in place of the "individual job-order" method, due principally to the clerical expense connected with finding costs by the latter method. Where the product is susceptible of classification, the class cost method may be employed with a fair degree of accuracy. For example, a foundry which forms an integral part of an industrial plant, manufacturing a uniform product, can usually classify its castings according to all the representative types produced. In other words, costs will be determined for castings coming within certain classes, the class to which they belong being determined by their weight, whether they are plain or cored, and whether they are simple or complex. The latter factors are governed by the extent of the operations necessary to produce the castings in the core-making and molding departments. Such a classification as mentioned above, for use in determining class costs in a manufacturing concern making castings for stationary gas engines. is shown as follows:

Classification of Castings by Classes

Shape and Cores	Weight of Castings, Pounds	Weight of Castings, Pounds
1.0 shape, simple	10.– 1 to 10	50.–101 to 200
2.0 shape, complex	20.–11 to 25	60.–201 to 300
0.3 cores, plain	30.–26 to 50	70.–301 to 400
0.4 cores, complex	40.–51 to 100	80.–401 to 500

The use of the above chart may be illustrated by the following examples: A casting given the class designation No. 32.4 would weigh from 26 to 50 pounds, have a complex shape and complex cores; while one coming under class No. 11, would weigh from 1 to 10 pounds, have a simple shape, and no cores. The classification will, of course, vary according to the product manufactured and the extent to which it is practicable to increase or decrease the various classes. It is apparent that the more detailed the classification is the more reliable the cost figures will be for price-quoting purposes.

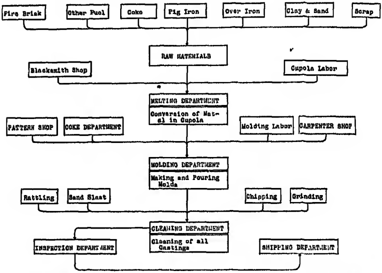


FIG. 11.—Flow chart showing the manufacturing process of grey iron castings.

The Individual Job-order Method.—Because the castings turned out by most foundries are diversified, ranging from simple castings weighing less than ½ pound each, to complicated castings weighing several hundred pounds each, the only logical and safe cost-finding method is that of computing the costs on individual patterns, or job orders. The only fault which may be found with this method is that it entails considerably more clerical work to operate successfully than the other cost-finding plans.

Under this method, the individual cost of each pattern, or job order, is computed departmentally, by means of various cost records and forms. The use and description of each cost record and form will be explained in the following paragraphs dealing

with the various producing departments, while the general relation and functions of the major cost records are shown in Fig. 10.

Operation of the Individual Job Order.—In the manufacture of grey-iron castings, the raw material passes through several separate and distinct processes, as shown by Fig. 11, each process or department having its own peculiar problem which is susceptible of separate cost treatment. Therefore, the operation of the cost system will be considered under the various operating departments, as follows:

1. Melting department.
2. Molding department.
3. Core-making department.
4. Finishing department.

Melting-department Costs.—The function of the melting department of a grey-iron foundry is the reduction of the pig iron to a molten state for the use of the molding department. The line of demarcation for cost purposes between the two departments is the delivery of the molten iron at the spout of the cupola. All costs incurred previous to the delivery of the molten iron at the spout belong to the melting department, including its pro rata share of the general overhead expense of the foundry, all these cost elements being shown by the classification of accounts.

The production costs of the melting department must be found by a process method of cost finding for the reason that the conversion of the metal to a molten state is not conducted exclusively for a particular casting. In the conversion of the metal into molten iron, no specific article is produced. The raw material (pig iron, scrap, etc.) is simply converted from one state to another, so that the process costs on a tonnage basis are the only logical costs in this connection, and all expenses in connection with the cupola, including the materials used, should be charged up and the result costed on a tonnage basis. The cost per pound of iron chargeable to each casting is determined through the medium of daily cupola reports, similar to the one shown below.

Molding-department Costs.—After the molten metal has been poured into a mold, it ceases to be raw material and becomes an article. Unlike the melting department, the molding costs for each pattern are applied direct, including the costs of making special patterns and flasks, with the exception of the overhead expense, which is prorated on the basis of direct labor hours.

The main cost-recording form for this department is the "flask card" for recording the length of time spent on molding a single casting or group of castings, as the case may be. When the flask is poured, the flask card is turned in as a positive record of the time and labor expended in pouring the flask. The various

DAILY CUPOLA RECORD

Date..........................

Material	Pounds	Price	Cost
Napier -Pig Iron			
Iroquois " "			
Scrap			
Gates and Sprues			
Over Iron			
Total Lbs. Iron			
Coke			
Wood			
Total Lbs. Fuel			
Total Iron Melted (Metal, Cost at Breast)			
Less Gates and Sprues			
Net Iron Melted			
Good Castings (Metal, Cost per lb. $0........)			
Loss			

Proportion Iron Melted to Fuel used..........%

Proportion Good Castings to Fuel used..........%

FIG. 12.—Daily cupola report.

items of direct and indirect expense are shown by the classification of accounts.

Core-making-department Costs.—The treatment of costs in the core-making department is similar to that in the molding department. The time and labor expended in producing cores for each job are recorded on "core tickets," and the overhead

applicable to this department is prorated on the basis of direct labor hours.

Finishing-department Costs.—The expenses incurred in this department are perhaps more difficult to allocate than in other producing departments. In most foundries it is impossible to charge the labor cost of finishing each casting or group of castings to a particular job order, but where it is possible this is the more accurate method. The finishing department's overhead expense would then be distributed, if this method is used, on the basis of direct labor hours.

The least accurate and most misleading of all bases for distributing finishing expenses to the product is on the basis of the flat cost per pound. The best argument against this basis is that made by John P. Jordan, which is quoted as follows:

Many foundries use the flat cost per pound to cover the finishing department, such cost including the direct operations of grinding, sand blasting, chipping, and the like, together with all the indirect expenses of the department. This practice is believed to be entirely erroneous, because it does not produce the nearest approximation of cost. A closer calculation of cost may be obtained by assembling the total costs of the finishing department, including direct and indirect, and applying them to the cost of castings at a rate per hour on the basis of the molding and core-making labor combined, or on the percentages based on the direct labor cost of these two departments.

The argument in favor of this method is that castings which have been cored usually require a greater amount of cleaning expense, particularly if the cores result in hollow castings, when difficult work is required to cut out the burned cores. The charging of finishing cost to the casting on the basis of the combined molding and core-making labor would then bring to the cored castings a larger charge than they would bear on a straight pound basis. A further argument in favor of considering coring labor in fixing upon the basis of charges for finishing costs is the fact that coring itself will lighten a casting.

Summary Cost Record.—The results as shown by the various cost-recording forms submitted by the producing departments are summarized and posted to a "production cost register," or a record similar to the one shown below.

Assets.—Depreciation of foundry equipment due to obsolescence through progress in inventions is less than in some industries, which may be partly due to stable conditions. However, the life of a melting furnace, a molding machine, or an annealing furnace might be terminated by the discovery of improved

methods which would make the old practice expensive and uneconomical to continue. Certain items of equipment are necessary to foundry production, such as patterns, wood flasks, hand tools, mold bands, and jackets, which should be charged directly to current operations. In equipping a new foundry, however, these items may safely be charged to a capital account and subsequent replacements to current operations.

Date	Order Number	Article	Pattern Number	Quantity	Cost Charges	
					Melting Dept.	
					Metal Cost	Overhead

Cost Charges—*Continued*									
Molding Department			Coremaking Dept.		Finishing Dept. Expense	Dr. Goods in Process	Cr. Goods in Process	Dr. Finished Product
Molding Labor	Molding Overhead	Pattern & Flask Exp.	Coremaking Labor	Coremaking Overhead				

FIG. 13.—Production cost register.

The Pattern account in a foundry deserves close scrutiny, and should be valued most conservatively. In the case of new pattern equipment, it is good practice to charge only the scrap value of the metals to the Pattern account, and the balance of the cost of such equipment direct to the product. Where special flasks are required for individual jobs in jobbing foundries, the cost of such equipment should be charged direct to the product, as it is unlikely that such special flasks will be used again.

The condensed classification of accounts shown below will serve to indicate the nature of the asset accounts.

ASSET ACCOUNTS

Current Assets:
- Cash
- Accounts Receivable
- Bills Receivable
- Inventories:
  - Metal on Hand
  - Materials, Tools, and Supplies
  - Castings in Process
  - Finished Castings

Deferred Charges:
- Insurance
- Taxes

Fixed Assets:
- Land
- Buildings
- Cupola
- Machinery and Equipment
- Patterns
- Flasks

Liabilities and Net Worth.—The liability and net worth accounts of a grey-iron foundry deserve no special comment. The following condensed classification of accounts will serve to indicate the nature of these accounts.

LIABILITY AND NET WORTH ACCOUNTS

Current Liabilities:	Net Worth:
Accrued Payroll	Capital Stock
Accounts Payable	Surplus
Bills Payable	Profit and Loss for Current Period.

Classification of Nominal Accounts.—The following classification of nominal accounts, recommended by Robert E. Belt, presents the various items of expense which enter into the production costs of grey-iron castings:

Metal:
- Pig Iron
- Scrap

Melting Department:
- Indirect Labor
- Fuel
- Flux
- Supplies and Tools
- Repair Labor
- Repair Materials
- Fixed Plant Charges
- Laboratory Expense

Molding Department:
- Direct Labor:
  - Direct Labor—Bench Molding
  - Direct Labor—Floor Molding
  - Direct Labor—Machine Molding
- Indirect Labor
- Supplies and Tools
- Repair Labor
- Repair Materials
- Fixed Plant Charges
- Special Pattern and Flask Expense

Core-making Department:
- Direct Labor
- Indirect Labor
- Fuel
- Supplies and Tools
- Repair Labor
- Repair Materials
- Fixed Plant Charges

Cleaning and Chipping Department:
- Indirect Labor
- Supplies and Tools
- Repair Labor
- Repair Materials
- Fixed Plant Charges

Finishing and Shipping Department:
- Direct Finishing Labor
- Indirect Finishing and Shipping Labor
- Supplies and Tools
- Repair Labor
- Repair Materials
- Fixed Plant Charges

General Expense:
- Office Salaries
- Office Expense
- Selling Expense
- Miscellaneous General Expense

Returns and Allowances:
- Returns and Allowances

Pattern Shop:
- Direct Labor
- Indirect Labor
- Materials, Supplies, and Tools
- Fixed Charges

Carpenter Shop:
- Direct Labor
- Indirect Labor
- Material, Supplies, and Tools
- Fixed Charges

Blacksmith Shop:
- Indirect Labor
- Fuel
- Materials, Supplies, and Tools
- Fixed Charges

Fixed Plant Charges:
- Power, Heat, and Light
- Fire Insurance

Fixed Plant Charges (*Continued*):
- Taxes
- Depreciation
- Medical and Hospital
- Liability Insurance
- Superintendent, General Foreman, and Miscellaneous Yard Labor
- Miscellaneous Plant Expense

Profit and Loss Statement.—The profit and loss statement of a foundry using a cost system is simplified by the fact that the cost of sales is shown in a ledger account by that or an equivalent title. This statement is interesting, because it is usual to incorporate into it statistics concerning the cost per ton.

NAME OF COMPANY

Profit and Loss Statement

For Period Ending... ....19.

			Total	Per Ton
Gross Sales			$....	$......
Less Returns and Allowances			.....	......
Net Sales			$ ..	$......
Cost of Sales			... ..	......
Gross Profit on Sales			$......	$......
Operating Expenses:				
Selling Expenses:				
Salesmen's Salaries	$......			
Commissions	......			
Traveling Expenses	......			
Advertising	......	$......		
General and Admin. Expense:				
Executive Salaries	$......			
Office Salaries	......			
Association Dues	......			
Office Supplies	......	......	......	......
Net Profit on Operations			$......	$......
Non-operating Items:				
Financial Income:				
Interest, Discount, and Exchange	$......			
Income from Investments	... ..			
Cash Discount on Purchases	......	$......		
Financial Expense:				
Interest Paid	$......			
Cash Discount on Sales	......			
Bad Debts	......	......	......	......
Net Profit for Period			$......	$......

Special Auditing Features.—The special points to be considered while auditing a foundry are:

1. Adequate reserves for depreciation of all physical assets about the plant should be set up.

2. The class or classes of product manufactured by a particular foundry should be investigated to determine whether it is advisable to record tonnage, class, or individual-job costs.

3. The basis or bases for arriving at the departmental overhead should be investigated to determine whether insufficient or undue burden is being allocated to any one product.

4. The issuing and accounting for materials should bear close scrutiny, for if carelessness exists in the handling of materials and supplies it will have a decided bearing on the gathering of dependable cost information.

CHAPTER V

FLOUR MILLS

Nature of Business.—The business done by a modern flour mill consists primarily of the manufacturing of flour from wheat, and the marketing of it and the resultant by-products. The process in use today was introduced in this country from Hungary about 1870. The methods, which precede the so-called "roller process," were essentially the crude processes of the century before, with improvement in the application of power. In modern mills, the wheat is usually elevated to the top of the mill, where the weed seeds, dirt, and other foreign material are removed by a screening process. In some cases it is necessary to wash the wheat, after which it must be dried. Before passing to the first crushing rolls, all wheat must be "tempered," or heated by steam to the degree at which it may best be ground. This tempering process has a tendency to add moisture to the wheat, as a result of which there is a slight overrun in the yield of wheat and offal over the weight of the untempered wheat. The first break simply flattens the kernels, after splitting them in halves along the longitudinal groove. The germ (the portion from which the new plant would develop), being undesirable in the finished flour, is separated from the balance of the kernel at this point. The material coming from the first roll is known as "first middlings," and passes almost wholly to the second set of rolls, after passing through a middlings purifier, which removes fine dust and dirt. The pulverized portions of the wheat are removed at each successive grinding, while the middlings, or unground portion, pass on to another set of rolls which is set up to pulverize to a finer state. The ground material is passed through machines containing screens of silk cloth having very fine mesh. These machines are called "bolting machines," and in them the coarser portions are separated for regrinding. The regrinding continues until the desired fineness is obtained, there being about forty separations before the final "patent" flour is produced.

About 70 per cent of the wheat goes into flour of various grades, or, in other words, it takes approximately 4.7 bushels, or 282 pounds, of wheat to produce one composite barrel of flour weighing 196 pounds. This composite barrel of flour is composed of the three grades of flour in approximately the following proportions—depending to some extent upon the quality of the wheat and the skill of the "head miller:"

	Per Cent		Pounds
First Patent	75	or	147
First Clear	15	or	30
Second Clear	10	or	19
Total	100		196

From this it will be seen that approximately 52 per cent of the weight of the wheat ground goes into the first-grade flour, the remaining 135 pounds being lower grades of flour and offal, or animal feed, such as bran and shorts.

The small initial investment required for the construction and equipment of a flour mill has made possible the erection in various parts of the country of a great many mills, which, except in New England and a few southern states, supply a considerable part of the local demand. It is estimated that there are about 7,000 mills in the United States. However, 1,000 of these grind about 80 per cent of all the flour, so that it may be said that the business is characterized by the large number of relatively small companies operating single mills.

The large mills are located in three important centers, namely, Minneapolis, Kansas City, and Buffalo. Many of the large mills market their product to the grocery and baking trade throughout the country, by means of branch houses located in the important distributing centers. The smaller mills resort to brokers or jobbers to sell such portions of their products as are not consumed locally. The jobber buys the flour outright and places it in storage, whence it is sold in small lots to grocers and bakers. The broker, however, sells in carload lots on a commission basis.

Organization.—The average-sized flour mill has a very simple organization, which may be attributed to the fact that, in the manufacture of flour, machinery plays by far the greater part, labor being relatively a very minor factor, up to the packing

stage. Mill hands, of course, are engaged on each floor, to see that the breaks and purifiers are in order. In the larger flour manufacturing enterprises, however, the administrative, manufacturing, and selling divisions are, of necessity, much larger than in the average-sized flour mill. This fact may be readily appreciated by considering the selling division of a large flour-manufacturing company, whose function it is to keep before the public the names of the brands sold, by large display advertising on billboards, in periodicals, etc., and move the manufactured product through sales campaigns. A chart showing such an organization is presented in Fig. 14.

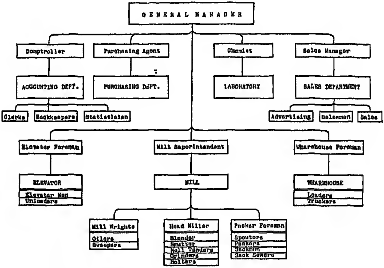


FIG. 14.—Organization chart—flour manufacturing company.

Legal Status.—Owing to the lack of federal laws relating to the marking of the weight of flour contained in the various sized sacks, and to the fact that each state has different laws relating to such markings, the miller who sells flour in different states must be very careful to see that the respective state laws are complied with. Notwithstanding the seemingly stringent laws relating to marking weights, there are no laws which require the name of the manufacturer to be shown on the package. The practice of marketing flour not bearing the miller's name makes it impossible to fix responsibility for an inferior product.

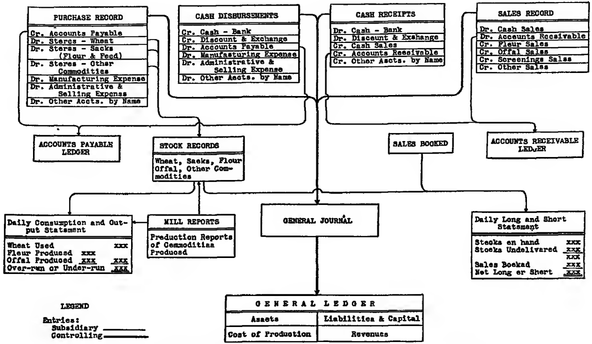


FIG. 15.—Chart of accounting books and records—flour manufacturing company.

Accounting Books and Records.—*Financial Records.*—The financial records necessary in the accounting for the average-sized flour mill consist principally of the usual cash book (which may be divided as to cash receipts and cash disbursements), purchase record, sales record, journal, accounts receivable ledger, accounts payable ledger, and general ledger. The chart (Fig. 15) presents in diagrammatic form the various financial records and reports, so arranged and connected as to show the functions of each, the course of entries from one to another, and the general relation each bears to the others and to the system as a whole.

Statistical Records.—The outstanding feature of flour-mill accounting is the extreme importance of two semi-statistical records which, in their first form, are daily statements. The first one is the daily production report, called a "statement of daily consumption and output," and the second is a report drawn from the records of the purchasing and selling departments, called a "daily long and short statement," which shows the relation existing between sales of flour for current and future delivery, and the stock of flour, stock of wheat, and wheat purchased for future delivery. These daily reports are summarized by months, in a record book. The production report figures are totaled to show the production for the month, while the daily long and short balance on open sales and the stock figures are kept merely for reference purposes.

The daily consumption and output statement is very important from an administrative point of view, as its use shows the efficiency of the manufacturing division of the business. This statement is prepared from detailed reports rendered each day by foremen in the different sections of the mill, and should present the information shown in the statement below. Under Section II of the statement, the quantities of various kinds of flour produced are dependent upon the quality of wheat being ground and the efficiency of the head miller, it being desirable, of course, to produce as high a per cent of patent flour as is possible. The information presented by this statement is recorded on a recapitulation sheet, and at the end of the month the totals and monthly averages are calculated. The importance of such a record is apparent, for, from the summarized totals of wheat used and flour and offal produced, the statistics of yield and percentages for cost purposes are computed.

The term "offal" is used to designate the by-products, which are sold as animal feed. The bushels of wheat used are converted to pounds, and the other products converted from barrels, or tons, to pounds, so that the percentages may be figured.

The weight of flour and offal produced is frequently in excess of the wheat ground, which is caused by "tempering" the wheat, and results in an invisible increase in pounds of production. Occasionally the situation may be reversed, and an invisible loss, or underrun, will occur.

STATEMENT OF DAILY CONSUMPTION AND OUTPUT

I. Wheat Used:				Pounds
(a) Gross wheat, 21 158 bushels, converted to pounds				1 269 480
II. Flour Produced:	Barrels	Per Cent	Pounds	
(a) Patent	3 510	75.5	687 960	
(b) First Clear	674	14.5	132 104	
(c) Second Clear	466	10.0	91 336	
Total	4 650	100.0	911 400	
II. Offal Produced:				
(a) Flour Middlings		22.1	77 600	
(b) Standard Middlings		20.2	71 000	
(c) Bran		53.1	187 000	
(d) Screenings		4.6	16 420	
		100.0	352 020	1 263 420
IV. Underrun or Overrun (Underrun)				6 060

V. Bushels of Wheat per Barrel of Flour, 4.55. (This figure is arrived at by dividing the bushels of wheat used by the number of barrels of flour produced.)

The use of the long and short statement is occasioned by the sales methods used in this industry. Flour sales are quite generally made for future delivery on the basis of the wheat market at the time the sale is made. The milling company protects itself against fluctuations in the cost of its raw material by making contracts for future delivery of wheat corresponding in amount and delivery date with its outstanding flour sales. Without indicating the exact form of this statement, the essential figures to be gathered thereon are as follows:

DAILY LONG AND SHORT STATEMENT

	Barrels	Equivalent to Bushels of Wheat
Long Side:		
Stocks on Hand:		
(a) Flour in Warehouse	400	1 820
(b) Wheat in Elevator		3 000
Stocks Which Will Become Available:		
(c) Wheat in Transit (Purchases to Arrive)		1 000
(d) Cash Purchases (Round Lots)		nil
(e) Wheat Options Purchased		5 000
(f) Total Wheat Available		10 820
Short Side:		
Total Flour Sales Booked:		
(g) Current Delivery	800	3 640
(h) Future Delivery	1 300	5 915
(i) Total Sales Booked	2 100	9 555
Net Long or Short Balance (Long)		1 265

The long or short balance is the excess or shortage of wheat compared with requirements, and is obtained by taking the difference between items (*i*) and (*f*). The terms "long" and "short" are used in the "pit" of the Board of Trade to describe a condition of an excess of purchases over sales, or an excess of sales over purchases, respectively. This daily report enables the manager to direct the purchase of wheat both as to quantity and time of delivery so that a steady production may be maintained and sales contracts for future delivery may be properly protected, or hedged, by the purchase of wheat futures. It is also important for the manager to maintain an equitable balance between the sales of flour and feed, for if this matter is not carefully watched it may result in considerable financial loss.

Production Costs.—The manufacture of flour is a "simple-process" cost, because of the continuous flow of the raw material (wheat) from start to finish and the absence of all features of a complex nature. This is due mainly to the fact that there are no well-defined stages or divisions in the process of manufacture where interim-process costs may be determined or inventories taken. The wheat, upon entering the hopper, must pass through

several distinct operations before it is made into flour, but at no stage of this continuous process is a cost or inventory taken. The mill, then, may be considered as equivalent to a single department in an industry having the "complex-process" cost features—with the exception that, instead of the product emerging in a semi-finished state, it is, save for the bleaching process, used in many mills to whiten the flour, and putting it in containers, a finished marketable product.

In the various industries having a continuous-process cost, the attention must be focused on a unit cost per hundred, per square foot, per ton, per barrel, etc. The unit of measurement in the flour industry is 1 barrel of flour weighing 196 pounds, and it is sold to the trade in various sizes of containers (either paper or cotton bags), ranging in weight from 6 to 140 pounds. The unit of measurement of offal, or animal feed, is 100 pounds, and it is sold to the trade in 100-pound jute bags, although it is quoted on a per ton basis. The manufacturing costs of a flour mill may be separated into three general divisions: (1) raw material (wheat), (2) processing, and (3) packing.

Raw Material Costs.—The cost charges under this division include the cost of material used and items pertaining to the storage and handling thereof. The charges should be subdivided into the cost of the wheat to be ground by the mill, purchasing expenses, power utilized by the elevator, elevator labor and expense, grain-car service, shrinkage of wheat, and miscellaneous expenses. The stabilizing of wheat prices throughout the year is regulated to a large extent by dealing in "futures," commonly termed "options." This whole question comes under the term of "hedging," which is described in Chapter III, "Cotton Mills," under the caption "Legal Status."

The cost of wheat ground is found by deducting the present inventory, valued at market price, from the total cost value or book value of wheat purchased (using previous inventory, plus purchases). Should there be open-option purchases or sales carried by a broker or subsidiary company, these should be "brought to the market," that is, the profit or loss which would be sustained in closing the trade at the price prevailing at the closing of the trading session on the day the "cut-off" is being made should be debited or credited to the Wheat account.

Processing Costs.—Processing costs start with the entry of the wheat in the mill, and comprise all costs incident to the

grinding of the wheat into flour. These costs may be subdivided into manufacturing labor and mill overhead, and these, by certain general subdivisions, may again be further subdivided for purposes of comparison. The labor required in flour milling is much less than in most industries, due to the intensive use of machinery, and is usually divided into wages paid for millers, oilers, and helpers. The mill payroll should classify the labor utilized by the mill, so that processing labor may be shown separate from packing labor, etc. Should the labor costs fluctuate, it will then be a simple matter to determine which division of labor is responsible for the variation.

The greater portion of the overhead expense will be borne by the mill, and it should be analyzed carefully for purposes of comparison. The main subdivisions should comprise power costs, maintenance expense, general mill expense, and a pro rata share of the administrative expense. The main subdivisions should, in turn, be analyzed to show the various elements of costs in each group, in order that fluctuations in the expense of one period over another may be traced to their source.

Packing Costs.—Packing costs start upon receipt of the manufactured flour. Beyond the labor cost of packing there is the cost of the container, which comprises all costs incident to the manufacture or purchase of barrels, bags, or other packages, also a proper proportion of the general and administrative expense.

Method of Cost Finding.—The method of cost finding used by many mills is as follows: The total cost of manufacturing is charged to the high-grade flour produced, from which is deducted the total selling value of the low-grade flour and offal (which are by-products of flour milling), to determine the net cost of high-grade flour manufactured. This method is based upon the theory that the miller is engaged primarily in the production of high-grade flour (called "patent" flour), and the low-grade flour and offal are by-products. The net cost of the flour, obtained by deducting the value of these by-products from the total cost, is approximately equal to the cost of the wheat used, since the value of the by-products under normal conditions equals, roughly, the sum of all expenses of milling and selling, except the cost of wheat. The summary of the daily production statements supplies a large portion of the figures required in the preparation of the cost statement, while the general ledger will supply the remainder.

METHOD OF COMPUTING COST OF A BARREL OF FLOUR[1]

Assume that the miller's records indicate that 4.6 bushels (276 pounds) of wheat, costing \$1.25 a bushel at mill (no underrun or overrun being considered), yielded:

Products	Market Price in Bulk
147.0 Pounds High-grade or Patent Flour	\$ 9.00 per barrel (196 pounds)
29.4 Pounds First Clear	6.86 per barrel (196 pounds)
19.6 Pounds Second Clear	4.50 per barrel (196 pounds)
72 0 Pounds Middlings and Bran	20.00 per ton
8.0 Pounds Screenings	10.00 per ton
276.0	

	Pounds	Value	Pounds	Value
4.6 Bushels of Wheat at \$1.25			276	\$5.75
Milling Expense				0.60
Total Charges to Patent Flour				\$6.35
First Clear	29.4	\$1.03		
Second Clear	19.6	0.45		
Middlings and Bran	72.0	0.72		
Screenings	8.0	0.04		
Total Credits to Patent Flour	129.0	\$2.24	129	2.24
Net Milling Cost of Patent Flour			147	\$4.11
Equivalent Milling Cost of 1 Barrel (196 Pounds) of Patent Flour (in Bulk)				\$5 48
Cost of Packages				0.40
Selling and Administration Expenses				0.65
Total Cost of 1 Barrel of Patent Flour				\$6.53

[1] The figures used in the above illustration are purely hypothetical and do not represent average costs.

Overhead Expense.—In the manufacture of flour, as in any industry having a simple process, it is not necessary to allocate the various items of overhead to a particular machine, department, or process, as in the case of an industry having a complex-process cost; but it is, on the other hand, necessary to charge them directly to the mill *en bloc.* The main requirement in the accounting for overhead expense in a flour mill is a correct classification and analysis of the various and sundry items which go to make up this charge to production costs. This is essential for comparative purposes and for locating any undue fluctuations in the various accounts from one period to another.

An important factor in the manufacture of flour is the actual time consumed in operation. It is obvious that a mill operating

on a 24-hour period will produce flour at about 60 per cent actual cost per unit, as compared with a 12-hour period. It is equally obvious that there is no profit in milling under conditions of a 12-hour period when production costs are figured on the basis of a 24-hour period. It is essential, therefore, that a schedule be maintained which will permit idle time to be charged as an actual and legitimate cost of production. This schedule must be based on a full-time period, and from this record can be determined the minimum cost of manufacture per unit, which can then be designated as the minimum rate.

This rate, however, must be determined by the experience of a number of months, or even years, with careful adjustment from time to time to meet changing conditions. If the minimum rate of cost per barrel is 60 cents, as established by the schedule for manufacture on a basis of a 24-hour period, and the mill operates on a 16-hour period, it is clear that the idleness of one-third time would cost one-third of the minimum rate of 60 cents, or 20 cents per barrel. The sum of the two, the minimum rate 60 cents and idle time cost 20 cents, would give the actual cost of 80 cents per barrel on a 16-hour period.

Chart for Figuring Selling Price of Flour.—The Chart (Fig. 16), which classifies the items to be considered in figuring the selling price of flour, was prepared by a committee of millers of the Millers' National Federation, assisted by the Federal Trade Commission.

Milling in Transit.—The railroads extend a so-called "milling-in-transit" privilege to country mills, which tends to put them on a parity with the more centrally located mills as far as freight rates are concerned. This privilege eliminates the handicap under which they would otherwise have worked in buying wheat to come by freight, and reshipping flour on the same road, since it is a well-known fact that the sum of two local freight rates is greater than the through rate. The operations of this may best be understood by reference to the diagram below:

A—Grain shipping point. B—Flour mill. C—Destination of flour.

Through rate on wheat from A to C is 25 cents per hundredweight.

A←——————————————————————————→C

Wheat rate from A to B is 18 cents per hundredweight | Flour rate from B to C is 12 cents per hundredweight

A←——————————→B←——————————→C

- Selling Price
  - Profit
  - Freight Outbound
  - Total Cost
    - Selling Expense
      - Salesmen's Salary
      - Salesmen's Expenses
      - Commission
      - Sales Manager's Salary
      - Sales Manager's Expenses
      - Advertising
      - Samples and Express
      - Incidentals
    - Shipping
      - Warehouse and Loading Labor
      - Mill-car Service and Switching
      - Car Cooperage Material
      - Clerks
      - Incidental
    - Mill Cost
      - Manufacturing Cost
        - Interest
          - On Plant except Power
          - On Working Capital except Grain
        - Mill Maintenance
          - Repairs
          - Depreciation
          - Insurance
          - Taxes
        - Administration
          - Executive's Salary
          - Executive's Expenses
          - Accountants' and Clerical Salaries
          - Office Expenses
          - Office Maintenance
        - Power
          - Wages, Engineers and Firemen
          - Fuel
          - Oil, Waste, and Packing
          - Maintenance
          - Depreciation
          - Interest
          - Insurance
          - Taxes
          - Incidentals
        - Manufacturing Labor
          - Millers, Oilers, and Helpers
        - General
          - Collection and Exchange
          - Watchmen
          - Insurance on Stock in Mill
          - Miscellaneous
      - Packages
        - Supplies
        - Packing Labor
      - Cost of Wheat Used
        - Grain Receiving
          - Power
          - Purchasing
          - Elevator Labor
          - Elevator Maintenance
          - Elevator Depreciation
          - Elevator Insurance
          - Elevator Taxes
          - Elevator Interest
          - Grain-car Service
          - Incidentals
          - Grain Shrinkage
        - Cost of Grain Purchased

Fig. 16.—Analysis of Selling Price of Flour.

When wheat is bought at point A it is shipped on a mill-in-transit billing, the freight rate of 18 cents per hundredweight being paid, but only the difference between the wheat rate from A to C and the flour rate from B to C, or 13 cents per hundredweight, being charged to the Inbound Freight account. The other 5 cents is charged to Milling in Transit account. When the flour is later shipped from B to C, the freight bill bears a notation to the effect that the grain was received with the mill-in-transit privilege, and it is billed at the through rate from A to C, less the amount originally paid. This effects a saving equal to the difference between the sum of the two local rates and the through rate.

In order that the accounting for milling in transit may be clearly understood, the following journal entries are presented to show the accounts affected:

Freight, Inbound (on wheat)	$0.13	
Milling in Transit	0.05	
Cash		$0.18
Freight rate paid per hundredweight on wheat from point A to point B.		
Freight, Outbound (on flour)	$0.12	
Milling in Transit		$0.05
Cash		0.07
Reduction of local freight rate on shipments of flour from point B to point C.		

The railroad company maintains a record of the transit paid and transit used, which should, of course, articulate with the Milling in Transit account kept by the milling company. The Milling in Transit accounts of the transportation company and milling company are compared from time to time, in order that they may be kept in balance with each other. Frequently the milling company does not pay the through rate at the time the shipment of wheat is received, an adjustment being made when the flour is shipped.

Assets.—A milling company employs no assets of an unusual nature in the conduct of its business, except that a large amount of expensive machinery is used, making depreciation an important factor. Some mills are still to be found which have water power rights, and in some cases contracts will be found which settle the division of water among two or more mills. Items of this nature are so rare that their discussion here is unnecessary.

The following classification of accounts will serve to indicate the nature of the asset accounts.

ASSET ACCOUNTS

Current Assets:
- Cash
- Accounts Receivable
- Notes Receivable
- Inventories:
  - Flour
  - Offal
  - Other Products
  - Wheat
  - Flour Packages
  - Offal Packages
- Options

Deferred Assets:
- Insurance Prepaid
- Expenses Prepaid
- Milling in Transit

Valuation Accounts:
- Depreciation
- Doubtful Accounts

Fixed Assets:
- Land
- Mill Buildings
- Mill Machinery
- Mill Equipment
- Office Buildings
- Office Equipment
- Storage and Delivery Equipment

Special Assets:
- Contracts for Future Delivery of Flour
- Contracts for Future Delivery of Offal

Contingent Assets:
- Claims

Liability and Net Worth Accounts.—The liability and net worth accounts of a flour milling company are similar to those of other industries of like nature and therefore deserve no special comment. The following condensed classification of accounts will serve to indicate the nature of the liability and net worth accounts.

LIABILITY AND NET WORTH ACCOUNTS

Current Liabilities:
- Accounts Payable
- Notes Payable
- Accrued Liabilities:
  - Taxes
  - Interest
  - Wages

Fixed Liabilities:
- Mortgages Payable
- Bonds

Contingent:
- Notes Receivable Discounted
- Claims

Special:
- Contracts for Future Delivery

Proprietorship:
- Capital Stock
- Surplus
- Profit and Loss

Income.—The income of a flour milling company consists almost entirely of the merchandising profit on its manufactured flour and feeds. The manufacture of breakfast cereals or pancake flour is quite common, but the volume is usually very slight compared with the main product. The income from these

operations can usually be calculated without seriously disturbing the compilation of cost figures for flour.

The following classification of accounts will serve to indicate the nature of the income accounts.

Income Accounts
- Sales:
  - Patent Flour
  - First Clear
  - Second Clear
  - Flour Middlings
  - Standard Middlings
  - Bran
  - Screenings
- Gain on Options

Profit and Loss Account.—The Profit and Loss account of a flour milling company is somewhat unusual, inasmuch as cost of shipments is obtained instead of cost of sales. This is because of the custom of booking flour sales for future delivery, the transaction being in the nature of a contract, except that it is less formal, and is frequently abrogated by unscrupulous dealers, who thus seek to take advantage of a declining market, but who would ask and expect full delivery in case the price should advance materially.

The flour business, in common with the grain business, has another peculiar feature, namely, the method of valuing inventories. It is the common custom to value grain stocks at the market value on the closing date, both in the grain and flour business; and it naturally follows that flour is subject to the same procedure. This procedure is criticized as shifting profits from one period to another, setting up anticipated profits, and, in general, being unsound and illogical. On the other hand, it may be defended as being justified by its simplicity, and entirely logical from the point of view of persons familiar with the business.

In preparing the Profit and Loss account, it is necessary to calculate the profit or loss on unfilled contracts, since a mill might have on hand a quantity of flour which, if valued at cost of production or at current market prices, would make a satisfactory showing, but which has been sold for future delivery at prices below the market at the time the statement is being prepared. The same procedure is adopted in connection with the open purchases of wheat, both actual wheat purchases and

"future" purchases. This operation is known as "bringing open trades to the market." No particular form is required, the transaction being listed as follows:

Open Flour Sales

To Whom	Date	Quantity	Delivery	Sale Price	Today's Price	Gain	Loss
E. L. Lawton	Sept. 15	200 bbl.	December	$10.50	$11.25		$150
H. Bennett	Oct. 15	100 bbl.	December	11.50	11.25	$25	

Open Wheat Purchases

Market	Quantity	Delivery	Purchase Price	Today's Price	Gain	Loss
Minneapolis	5 000 bu.	December	$2.25	$2.23		$100

The gain or loss on wheat or flour, as shown by the summary of these "cut-off" sheets, is carried to the wheat and flour inventory.

Special Auditing Features.—The principal point to be considered in connection with a balance sheet audit of a flour mill is the inventory. As has been stated previously, it is customary to value grain and flour on hand at market value, that is, the actual market price of wheat of a like grade, and market value of flour, less the usual margin between cost of production and loading, and f.o.b. sales value. It is necessary, therefore, for the auditor to satisfy himself that the quantities and grades of both grain and flour as shown by the inventories are correct, and that the prices at which such stocks are inventoried are the logical ones to use.

Care should be taken in measuring the grain on hand, for the reason that it may be piled unevenly, and if measured from the top of a heap or the bottom of a hole it will result in a considerable variation. After taking the measurement of the grain in the bins, the computation of the amount on hand can be quickly ascertained by reference to charts prepared for that purpose. Should grain in transit be included in the inventory, the auditor should make sure that the liability for such shipments has been properly established.

Should there exist a large number of unfilled flour sales at prices which are greater than the present market value, the responsibility of the buyers should be inquired into, and, if this is not entirely reassuring, a suitable reserve should be established under "reserve for cancellation of flour contracts."

CHAPTER VI

CEMENT MILLS

Nature of Business.—Portland cement originated with Joseph Aspdin, a bricklayer of Luds, England, who in 1824 took out a patent for a cement to which he gave the name of "Portland," on account of its resemblance, when hardened, to the famous stone used extensively for fine building, and found on the Isle of Portland, on the northern coast of England. Portland cement differs from natural cement in that it does not depend upon nature for the proper materials correctly proportioned for the manufacture of cement; but is, on the other hand, a manufactured product. Its composition is, however, governed at all times by the proper selection of the raw materials of which it is made. Should the raw materials vary in composition, it is easily detected, which fact makes it a highly dependable product. The modern Portland cement, however, is manufactured from a mixture of two materials, limestone rock (or similar materials, such as chalk or marl) and clay or shale, although slag from blast furnaces is sometimes used in conjunction with limestone.

There are two processes by which Portland cement may be manufactured: The first is by the dry process, wherein the raw materials are quarried, crushed, dried, pulverized, and mixed in proper proportions. The pulverizing, or grinding, of the raw material is one of the important steps in the process of manufacture, and is accomplished by grinding machines. The dry process is usually employed when limestone and cement rock are used, although some plants using limestone and clay operate on a semi-wet process.

The wet process is usually employed when marl and clay are used, and consists of taking the mixed materials as they come from the beds and grinding this mixture in tube mills, together with sufficient water to make a thick "slurry." This process is also employed when clay and chalk are used. The slurry has the consistency of thin mud, and is fed by pumps, or by screws, into storage tanks, where it is thoroughly mixed, either by

mechanical means or by air agitation. From the storage tanks, the thoroughly mixed slurry is pumped into the rotary kilns.

The cement mixture in powder form (dry process), or as wet slurry (wet process), is fed into a rotary kiln at the upper end, and, as it travels downward, becomes dried (if wet) and is gradually brought to the white heat of the hottest zone of the kiln, issuing finally in the form of clinker in various sizes. The heat which causes the raw mixture to be burned, or "calcined to incipient fusion," is generated by the combustion of jets of oil, or pulverized coal and air, which are blown in at the lower end of the kiln.

The clinker, in the form of small pebbles, rolls out at the lower end of the kiln into another revolving cylinder, where it is cooled by passing a current of air over it. The current of air is thereby heated, and is used to facilitate the combustion in the kiln. The clinker is then placed in storage until it is seasoned, when it is ready for the finishing mill.

The processes described above require three separate and distinct operations from the preparation of the raw material to the finished product. The first is purely mechanical, and includes the assembling, preparing, grinding, and amalgamating of the raw materials; the second is chemical, during which the material prepared by the first operation is calcined, or burned at a high temperature, bringing about chemical composition of the various ingredients. The third, and final, operation is partly mechanical and partly chemical, in which the clinker, resulting from the calcination, together with a small percentage of gypsum to prevent the cement from setting too rapidly when used, is reduced to a fine powder. The product is now Portland cement, and is conveyed to immense bins, where it is stored awaiting shipment, at which time it is packed into barrels, cloth sacks, or paper bags.

The chief factor to be considered in the manufacture of Portland cement is an adequate supply of raw materials, and no plant should be built having less than twenty years' supply in sight. Each barrel of cement requires approximately 450 pounds of limestone and 150 pounds of clay, or shale. Therefore, a plant making 1,000 barrels daily will use annually about 66,000 tons of limestone and 22,000 tons of clay, or shale. This quantity is equivalent to almost 1,000,000 cubic feet of limestone and 250,000 cubic feet of shale. Therefore a 1,000-barrel plant

should have 20,000,000 cubic feet of limestone and 5,000,000 cubic feet of clay, or shale, available on its property. A plant must be located near the source of the raw materials, as the cost of transporting these materials any distance would make the cost of the finished product prohibitive. Other factors upon which success depends are transportation facilities, supply of fuel, and the market for the finished product.

Organization.—The organization of a Portland cement plant resolves itself into three general divisions; quarrying, manufacturing, and selling. The function of the quarry division is the production of the raw materials, which includes stripping, clear-

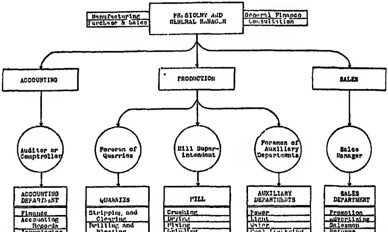


FIG. 17.—Organization chart—cement industry.

ing, drilling, blasting, and the transportation of these raw materials to the mill. The manufacturing division includes all operations from the storage of the raw materials to the production of the finished product; while upon the selling division is imposed the task of marketing the manufactured product, at a price which will return a fair margin of profit upon the investment. In order that the above divisions may function properly, it is highly important that an adequate accounting department be maintained, to guide the executives at the head of the enterprise in administering, financing, and marketing the product. The

organization chart (Fig. 17) presents the various officials and the functional heads and divisions of a cement plant.

Legal Status.—The manufacturer in the cement industry, as in many other industries selling the product in returnable containers, stipulates in his sales contracts that cloth sacks must be paid for with the cement, and agrees to repurchase, at a certain price per sack, from the purchaser of the cement, such of the cloth sacks as may be returned in fit condition for further use. The sales contracts also stipulate that the customer must pay the freight on the returned empties, and that the cement manufacturer's count and inspection shall be final in determining which sacks shall be repurchased. Therefore, when a barrel of cement in cloth sacks is sold to a customer, the transaction is not complete with the invoicing and delivery of the cement; there still remains to be discharged by the cement manufacturer a vital and essential part of his sales contract.

Accounting Books and Records.—*Financial Records.*—The financial records used by an enterprise in the manufacture of Portland cement consist merely of the usual cash book (which may be divided as to cash receipts and cash disbursements), purchase journal, general journal, sales record, sack record, accounts receivable ledger, accounts payable ledger, and general ledger. These records call for no special comment as the functions of each, and the course of entries from one to another, and the general relation each bears to the others and to the system as a whole, are presented in diagrammatic form in Fig. 18.

Cost Records.—Cement manufacture is what is known as a continuous process on mass product. In the course of travel of the basic materials from the quarry to the merchantable product, there are, however, at least three points where more or less of an accumulation of the partially processed mass occurs. This may happen through seasonal requirements—as the quarrying process is most largely performed before the rigors of winter set in—or it may be a matter of labor conditions in different departments; or, yet again, a matter purely of antecedent preparation against ill effects from "feast or famine" conditions obtaining in any of the successive departments. Irrespective of the reason, the facts are that certain processed material must be carried on inventory; sane and rational accounting requires that these inventories be intelligently costed, and placed under adequate accounting control.

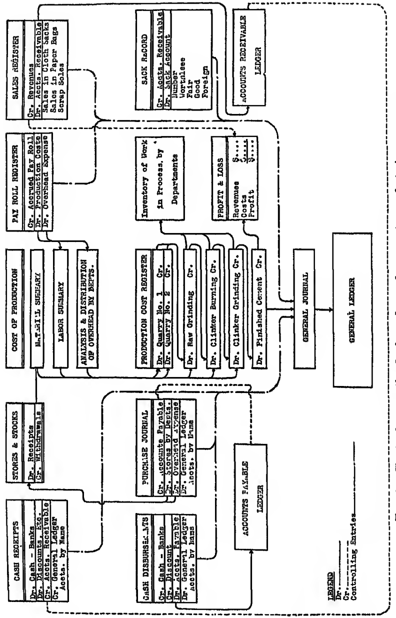


FIG 18.—Chart of accounting books and records—cement manufacturing company.

The principal record utilized to collate the cost of the finished product is the cost ledger, which is divided into two general sections, *viz.*, the quarry section and the mill section. Under the quarry section provision is made for Quarry No. 1, and Quarry No. 2, with such others, in addition, as the individual plant has need for. To these accounts are posted all the various and sundry costs involved in the production and transportation of the raw material to the mill or to storage areas.

Under the mill section, provision is made for recording all costs incident to the grinding and burning operations involved in cement production. These operations include raw grinding, clinker burning, and clinker grinding; and, beyond this, the costs involved in storing raw material and partially processed material, the largest volumes of which consist of raw material No. 1, raw material No. 2, and clinker. Each of the latter should have a cost record, similar to that of the processing departments, wherein may be accumulated any and all charges due to the expenditure of money, or the flux of time, with its incident of proportional absorption of rent, interest, and other overhead items.

The various accounts in the cost ledger receive their entries severally from the cash book, purchase journal, payroll register, and expense summaries, all of which are shown diagrammatically in Fig. 18.

Production Costs.—In a continuous process the costs obtained are, of necessity, average costs over a given period, there being a summation of the cost in each individual department, and, subsequently, a division of this cost over the yield of the department, expressed in terms of the unit of production. The semi-finished product in the cement business is clinker, and this is figured in barrels, in the same manner that the merchantable cement is. The accounting for the cost of the product in its various stages of manufacture, from the inception of the raw material to the finished product, is shown in Fig. 19. A separate column may be added to the chart, to show the cost of coal used in the drying and burning process, instead of including this item of expense in overhead. This information is important, for the reason that it represents 25 to 30 per cent of the cost per barrel of cement; and, in the opinion of cement men, this is one of the most important items in the manufacture of cement.

This chapter considers the quarrying of two raw materials, the dry process of mixing and grinding, and the use of coal for

Statement of Production Costs

Departmental Accounts	Date		Material, Dr. Quantity	Material, Dr. Price	Material, Dr. Amount	Labor, Dr. Amount	Overhead, Dr. Amount	Yield Credit: In Process Unit	In Process Quantity	In Process Price	In Process Amount	Inventory Unit	Inventory Quantity	Inventory Price	Inventory Amount
Quarry Section: No. 1 Cement Rock	8	30	50 000 tons depletion	0.10	$ 5 000 00	$10 000 00	$10 000.00	Tons	30 000	0.50	$15 000 00	Tons	20 000	0 50	$10 000.00
Quarry Section: No. 2 Limestone	8	30	30 000 tons depletion	0 066	2 000.00	3 000.00	2 500.00	Tons	20 000	0.25	5 000 00	Tons	10 000	0.25	2 500.00
Mill Section:	8	30	30 000 tons	0.50	15 000 00	10 000 00	13 650 00	Barrels	110 000	0 397	43 650 00	Barrels			
Raw Grinding Department		30	20 000 tons	0.25	5 000 00										
Mill Section: Clinker Burning Department	8	30	110 000 bbl.	0 397	43 650 00	17 000.00	42 250.00	Barrels	105 000	0.935	98 222 50	Barrels	5 000	0.935	4 677.50
Mill Section: Clinker Grinding Department	8	30	105 000 bbl.	0 935	98 222.50	3 100.00	28 645.00	Barrels	100 000	1.237	123 779 00	Barrels	5 000 Bin cost	1 299 of cem	6 188.50 ent
Shipping:	8	30	100 000 bbl.	1.237	123 779.00										
Sack Cost		30		0.15	15 000.00	2 700.00	1 850 00	Barrels	100 000	1.435	143 560 00	Cost of	Sales		
Packing and Loading															
Sack Handling															

Fig. 19.—Statement of production costs—cement mill.

The most simple and broadly effective plan of determining the manufacturing costs of cement is on the basis of monthly production. This requires that each department shall be charged with all material and all labor used, and all direct expense incurred during the month; and, beyond this, with a just and accurate absorption of general overhead costs.

At times, the necessity is felt of having a general averaged cost rather than that based on one month, in which case three, four, six, or twelve months' average may be taken, by summating the costs of the desired period and dividing the result into the yield of that period.

The ultimate object of determining correct production costs is to arrive at the cost per barrel of finished cement. In order to do this, it is of prime importance that correct inventories be maintained at each stage of the process. This fact may be emphasized in the case of raw materials. It is not unusual for a cement manufacturing company to quarry its entire year's consumption of raw material during the summer months; and, obviously, it would be wrong to charge the clinker costs for the summer months with the cost of producing the entire year's supply of raw material. It is essential, therefore, that separate costs be maintained for each of the raw materials quarried, and that the clinker cost records be charged with only the amount consumed during the month.

Parallel conditions obtain with clinker costs, inasmuch as the clinker inventory may fluctuate widely from time to time, since in some months more clinker is likely to be produced than is ground into cement, while in other months the quantity of clinker produced will be much less than the quantity consumed. It is, therefore, necessary to have each step in the production routine stand squarely upon its own cost basis, and to have its own individual unit cost determined, so that subsequent routines may bear only their own just costs. Clinker costs, when known, may be used for inventory valuations, and also for subsequent processing; conversely, inventories cannot be intelligently priced unless comprehensive costs are known; hence it is imperative to carry the going inventories of the various processing steps, unless false showings are to result.

Overhead Expense.—The correct distribution of overhead expense over the various producing departments of a cement plant is highly essential, if it is desired to ascertain reliable

departmental costs, or the cost of inventories at different stages of the process. Many items of overhead expense can be directly allocated to the producing departments, and, where such procedure is possible, it should be followed. The remaining items which cannot be allocated directly, must, of necessity, be prorated on some arbitrary basis. The various producing departments should also bear their pro rata share of the general and administrative expense, according to the amount of supervision exercised over each and the benefits derived from the administrative division.

Each of the auxiliary departments should bear its pro rata share of the general overhead and administrative expense. When the total expense of these departments has been determined, the share of each should be prorated over the various producing departments according to the benefits derived.

Returnable-sack Accounting.—Cement (with the exception of a very small percentage which is sold in paper bags and bulk) is sold for shipment in cloth sacks. Cement companies differ in their theories as to how these sacks should be disposed of to the customer. Some companies sell them outright for whatever happens to be the price that they had set for such sale; other companies retain ownership of the sacks, or, in other words, lease them to the customer at an agreed-upon price. In either case, however, whether sold or leased, the agreement is that they shall be returned to the cement company at the same price the customer paid for them, or he is required to make a deposit, which is paid back when the sacks are returned.

At the present time the charge for cloth sacks, whether sold or leased, has been reduced to 10 cents per sack, which the customer must pay, and which is refunded when he returns sacks within a reasonable time, in good condition, subject to the count and inspection of the cement company.

The system of accounting for returnable sacks, and the fact that in the cloth sack item no profit or loss is incurred until the sack has disappeared in service and will not be returned, will be explained.

For illustration, take a company which leases its sacks. If the price of sacks sold by the manufacturer to the cement company is 10 cents each, and the charge to the customer is 10 cents each, and the amount refunded to the customer when sacks are returned by him is 10 cents each, the question is a comparatively

simple one; but this condition has never existed and probably never will. Assume that the average inventory price of all sacks on hand in the cement company's inventory is 15 cents per sack, and that the charge to the customer is 10 cents per sack. The following general ledger accounts should be opened: Sack Inventory, Sacks in Customers' Hands, Customers' Sales Ledger, Customers' Sack Deposit, Profit and Loss on Sacks Developed Useless, and Profit and Loss on Sacks Destroyed in Service.

All old and new sacks in inventory should be charged to the Sack Inventory account at an average price, which, for example, will average 15 cents per sack. As sacks are shipped, the first entry is a transfer by journal entry from the Sack Inventory account to the Sacks in Customers' Hands account, at the average price of 15 cents per sack, which is the average inventory value. This entry is made largely for convenience, because it enables one to ascertain readily how many sacks are in the hands of customers at any given time.

At the end of the month (because in the customer's invoice there is a charge of 10 cents for each sack), in the recapitulation of the sales journal the total of the invoice, including the 10 cents, is charged to the Customers' Sales Ledger account, while the credit is split to Cement Trading account, or, in some companies, Profit and Loss account, and Customers' Sack Deposit account. The latter account appears on the balance sheet as a distinct liability, and should represent 10 cents for each cloth sack shipped and outstanding.

This liability account stands until the sacks are returned by the customer, when a specific liability to the individual customer should be entered on the books, or a check or draft drawn in favor of the customer and charged to the general liability account, Customers' Sack Deposit account. A further entry is then made, charging back to the regular Sack Inventory account and crediting Sacks in Customers' Hands with the number of sacks returned at their inventory value.

There is no question but that a leasing company must take back its own sacks. In this connection, in order to know what its obligation is, the company must keep its books in such a manner that its liability is always reflected. It is rather important that this Customers' Sack Deposit account be shown on the balance sheet separately from all other reserves or liabilities.

By referring to the balance sheet, the executive can tell what the company's liability for this item is; and, from other statistics, approximately how much will be liquidated monthly, as well as how many sacks are still outstanding.

Auxiliary accounts should be kept, either in the customers ledger or in some other way, to show how many sacks are outstanding in the hands of each customer, which total should equal that shown by the controlling account, Sacks in Customers' Hands.

Another item, however, which must be disposed of currently, preferably at the end of each month, is the useless sacks returned by the customer, for which he is not allowed credit. Owing to the lack of proper care by the customer, sacks frequently become useless, some because they are wet, torn beyond repair, improperly handled, etc. Useless sacks should be accounted for separately, in the following manner: At the end of each month, in order to get them out of the accounts, the following entries should be made: Charge Customers' Sack Deposit account with 10 cents each for all useless sacks returned during the month; credit Sacks in Customers' Hands, with the average inventory price of 15 cents each; and charge the difference of 5 cents each, which represents the difference between inventory value and the amount of deposit the customer has made for which he will not receive credit, to Profit and Loss on Sacks Developed Useless.

The number of sacks represented in Sacks in Customers' Hands and the Customers' Sack Deposit account should always be the same, and should balance with the individual customers' records as to numbers, as stated previously.

The accounting for sacks by a selling company should be the same as by a leasing company, because, whether sacks are sold or leased, the agreement is that they shall be returned to the cement companies within a reasonable time; but, in order to meet some of the views of the selling companies, a distinction in the accounting is made, to take care of this difference, which is only technical.

When a company sells its sacks, a slight modification of the foregoing entries is necessary: General accounts will be the same as in a leasing company, except that accounts, Deferred Sack Losses and Unearned Profit on Sacks, will be added, and Sacks in Customers' Hands and Customers' Sack Deposit accounts dropped.

The Sack Inventory account will be credited with the sacks shipped, at the average inventory price of sacks, which is 15 cents each, and Customers' Accounts Receivable (sales ledger) will be charged with 10 cents for each sack shipped. The difference between the average inventory price and 10 cents billed the customer will be charged to an account called "Deferred Sack Losses"; or, if the inventory is less than 10 cents, the difference will be credited to an account called "Unearned Profit on Sacks." When the customer returns the sacks, the two latter entries, of course, will be reversed. In a selling company, the useless sacks returned are handled in a slightly different manner from that of a leasing company. A journal entry should be made when useless sacks are returned, charging Profit and Loss on Sacks Developed Useless and crediting Deferred Sack Losses with the difference in the cost to the company and the amount charged to the customer, which, in the illustration, is 5 cents per sack; or, if the cost to the cement company is less than the 10 cents charged to the customer, then the difference should be charged to Unearned Profit on Sacks and credited to Profit and Loss on Sacks Developed Useless. Auxiliary accounts must be kept, showing the amount of sacks outstanding at all times, the same as in a leasing company.

Another important item in regard to this sack question must be considered: A certain percentage of sacks shipped will never be returned. Hence, some adjustment must be made, which is an estimate based upon past experience. This record in most cement companies is complete. Statistics show that, over a period of years, approximately 8 per cent of the total sacks shipped will never be returned. Each month, 8 per cent of the shipments should be written out of the accounts. For illustration, assume that in a leasing company in a given month 100,000 sacks are shipped out, which cost 15 cents per sack, and are billed to the customer at 10 cents per sack. There will be a loss of 8,000 sacks at 5 cents each, or $400. The inventory account, Sacks in Customers' Hands, should be reduced by 8,000 sacks, amounting to $1,200, and the Sack Deposit account reduced by $800; the profit and loss should be charged to an account styled "Profit and Loss on Sacks Destroyed in Service," $400.

If the price of sacks to the cement manufacturer be reduced to less than 10 cents per sack, some of the figures will be shown as profits instead of as losses, but this does not mean that there is a profit to the cement companies in the handling of these sacks.

A selling company will charge Loss on Sacks Destroyed in Service, and credit Deferred Sack Losses, with the difference between the cost of 15 cents and the charge to the customer of 10 cents on 8 per cent of its shipments; or, if the cost to the cement company is less than 10 cents, the difference should be charged to Unearned Profit on Cloth Sacks, and credited to Profit and Loss on Sacks Destroyed in Service.

The above accounting methods do not take into consideration the handling charges, such as unloading, counting, inspecting, mending, sorting, cleaning, and other charges incurred in the handling of sacks at the cement mills when returned by customers. These charges, which are numerous and large, are charged to cement manufacturing costs; they amount to many hundreds of thousands of dollars per year.

It is obvious that, in the handling of the accounting for cement sacks in a large cement company, the shipments of which are in excess of 12,000,000 barrels of cement per year, and which would take, if sacks made only one trip, a total of 48,000,000 sacks annually, each sack cannot be accounted for separately and individually, but must be handled in totals, as explained.

The above methods were worked out, primarily, to show a proper accounting procedure; that no earnings or losses have taken place, except in useless sacks returned (which is almost negligible); and the per cent that will never come back, which is written out of the accounts as shipped.

The methods described have not only worked successfully in one of the largest cement companies, and in other companies, but they have placed the accounting with respect to the returnable sack problem on a sound footing, not only with the Internal Revenue Department, but also with all others who have had occasion in the past to question the sack accounting in the cement industry.

Assets.—The bulk of the assets of the cement business is composed of heavy, expensive machinery, which is operated 24 hours a day during the periods of activity, grinding heavy, gritty substances, such as slag, limestone, coal, and materials of like nature. The life of such machinery is very short, because the grinding and burning of these materials causes heavy repairs. This fact makes it necessary to apply heavier depreciation and renewal charges than in ordinary lines of manufacture.

Another point to consider is the fact that the cement business is largely a seasonal one; therefore, its financial needs must be so planned that its seasonal needs may not throw its yearly necessities out of alignment.

The quarries of each plant must be governed by local, or individual, quarrying conditions, as no fixed rule can be laid down to cover every condition, except that some charge should be made in monthly costs and credited to Reserve for Depletion until such reserve equals the purchase price of the quarries.

The following condensed classification of accounts will serve to indicate the nature of the asset accounts:

ASSET ACCOUNTS

Current Assets:
- Cash
- Accounts Receivable:
  - Customers
  - Advances
- Bills Receivable
- Inventories:
  - Raw Materials
  - Clinker
  - Cement
  - Gypsum
  - Coal (kilns, steam)
  - Packages (sacks, barrels, paper bags)
  - Work in Process

Deferred Charges:
- Shut-down Expense
- Exploration and Development
- Insurance Unexpired

Investments

Fixed Assets:
- Machinery
- Buildings
- Mill Land
- Quarry Land

Valuation Accounts (Reserves):
- Depreciation
- Depletion of Quarry Lands
- Doubtful Accounts

Liabilities and Net Worth.—The liability and net worth accounts of a cement plant deserve no special comment, with the exception of the Sack Deposit Liability account, described under "Returnable Sack Accounting." The following condensed chart of accounts will serve to indicate the nature of the liability and net worth accounts:

LIABILITY AND NET WORTH ACCOUNTS

Current Liabilities:
- Bills Payable
- Trade Accounts Payable
- Unclaimed Sacks
- Payroll Accrued
- Bond Interest Accrued
- Royalties Accrued

Reserves:
- Contingencies
- Redemption of Sacks (unearned profit)

Fixed Liabilities:
- Bonds Payable
- Mortgages Payable

Net Worth:
- Capital Stock
- Surplus
- Profit and Loss

Classification of Nominal Accounts.—The following classification of nominal accounts will be found necessary where it is desired to obtain process costs for the valuation of inventories of material in process and the finished product. Most manufacturers of cement, however, do not attempt to allocate general and administrative expense to the quarries and the respective departments of the mill. This method, while not theoretically correct, is usually accepted as more practicable, and gives reasonably correct costs for the valuation of inventories in process and the finished product.

The "bin cost" of the cement is determined by a summary of the manufacturing accounts, and, by adding the sack and shipping expenses, the "cost on board cars" is obtained.

MANUFACTURING ACCOUNTS

Quarry Section (Raw Material No. 1):
- Operating Labor
- Operating Supplies:
  - Fuel
  - Explosives
  - Miscellaneous Supplies
- Depletion of Quarry Lands
- Pro rata share of General and Administrative Expense

Quarry Section (Raw Material No. 2):
- Operating Labor
- Operating Supplies:
  - Fuel
  - Explosives
  - Miscellaneous Supplies
- Depletion of Quarry Lands
- Pro rata share of General and Administrative Expense

Mill Section:
- Raw Grinding Department:
  - Raw Material No. 1
  - Raw Material No. 2
  - Fuel
  - Operating Labor
  - Pro rata share of General and Administrative Expense

General Overhead Expense (prorated over direct producing departments, according to benefits derived by each):
- Superintendence
- Mill Office and Storeroom
- Machine Shop
- Blacksmith Shop
- Carpenter Shop
- Local Transport
- Railroad and Switching
- Live Stock
- Laboratory
- Power
- Heat
- Light
- Water
- Insurance:
  - Fire
  - Liability
- Taxes:
  - Local
  - State
- Depreciation:
  - Buildings
  - Machinery
  - Equipment
- Miscellaneous Items

MANUFACTURING ACCOUNTS.—*Continued*

Clinker Burning Department:
- Raw Ground Material
- Fuel
- Operating Labor
- Pro rata share of General and Administrative Expense

Clinker Grinding Department:
- Clinker used
- Gypsum used
- Operating Labor
- Pro rata share of General and Administrative Expense

Administrative Expense (prorated over the direct producing and selling departments, according to the benefits derived by each):
- Executives' Salaries
- Executives' Expenses
- Clerks' Salaries
- Stationery and Printing
- Telephone and Telegraph
- Postage
- Legal Expense
- Miscellaneous Items

(The cost of the cement at this point gives the "bin cost" of the finished product.)

Sack and Shipping Expenses:
- Sack Costs:
  - Sacks
  - Handling
  - Allowances
- Packing and Loading

(The cost of the cement at this point gives the "cost on board cars" of the finished product.)

Commercial Expenses:
- Selling Expenses:
  - Sales Office Salaries
  - Sales Office Expenses
  - Salesmen's Salaries
  - Salesmen's Expenses
  - Advertising
  - Commissions
  - Associations Dues
  - Pro rata share of Administrative Expense

REVENUE ACCOUNTS

Income:
- Sales by Classes
- Interest Received
- Discount on Purchases
- Unclaimed Sacks
- Foreign Sacks Unclaimed
- Miscellaneous Income

Expenses:
- Interest Paid
- Interest Allowed
- Discount on Sales
- Bad Debts

Special Auditing Features.—The audit of a cement enterprise will not differ to a great extent from any other manufacturing enterprise. The auditor should generally make sure that all income is fully accounted for, that production is efficient, and that proper distinction is observed between charges to capital and income accounts. The total dividends declared should be scrutinized, to see that they do not exceed the sum of net profits and capital depletion. The correctness of the original estimate of raw material available should be ascertained.

Some plants maintain a commissary and houses for the employees. Where this is the case, the payrolls must be checked carefully, in order not only to verify their accuracy, but to gain assurance that proper deductions have been made from the employees' pay checks for supplies sold them and for rents of houses furnished them by the company. Power and light are sometimes supplied to villages and the plant employees in such villages. Where such auxiliary activities exist, they should be carefully examined by the auditor, to make sure that all income is accounted for.

The valuation of inventories in various stages of process should receive careful consideration; and, in order that this may be done, it is important that separate costs be maintained for each separate process. If this is not done, it will be necessary to estimate the value of the inventories. The quality of the cement on hand should be ascertained through the company chemist, and in case of doubt the auditor should request an independent analysis. The auditor should investigate the accounts or notes receivable that have been owing a long time because shipments of cement may have been rejected on account of not meeting the required specifications.

The auditor should investigate deferred charges, such as "stripping" expense, to determine whether any or all of such expense should be charged to a subsequent period; also "shut-downs" expense, caused by climatic conditions or for the purpose of making substantial repairs to the kilns. Such repairs should be written off to manufacturing costs in equal instalments during the remainder of the fiscal year.

The method of accounting for returnable sacks should be investigated, to determine whether or not the sacks are properly accounted for. Tests should be made to see that all allowances have been offset by the receipt of the manufacturer's sacks in fair condition.

CHAPTER VII

COMMERCIAL BANKS

Nature of Business.—The primary functions of a commercial bank are the making of loans or discounts and the accepting of deposits. A third function, performed by many banks, is that of issuing bank notes, or the bank's own promise to pay, for use in general circulation as a substitute for money. Incidental functions are of infinite variety, such as dealing in bonds, foreign exchange, collection of negotiable paper, etc.

Banks may be classified either according to the legal authority under which they conduct their business, or the type and character of business in which they specialize. The three classes of commercial banks in the United States are national banks, state banks, and private banks. National banks are organized under the provisions of the National Bank Act, which permits the Comptroller of the Currency to issue certificates of incorporation, valid for twenty years, to any five reputable citizens who wish to establish a national bank and can command the capital prescribed by law, which is not less than $25,000 for small towns under 3,000 inhabitants, up to $200,000 for cities over 60,000 inhabitants. State banks are chartered either under special laws or the general banking laws of a state, and operate under the supervision of the State Banking Department, or the Auditor of the state. Private banks are of various kinds, but for the most part they are small concerns which engage in a general banking business (largely savings), without any specific grant or authority, and may or may not be under the supervision of the State Banking Department.

Organization.—A bank is divided into such departments as are demanded for the operation of the different functions, and a personnel is appointed to operate these divisions. The functions of the major divisions are: The receiving of deposits and paying depositors' checks, the buying and selling of drafts on other banks, the lending of money on notes properly secured and

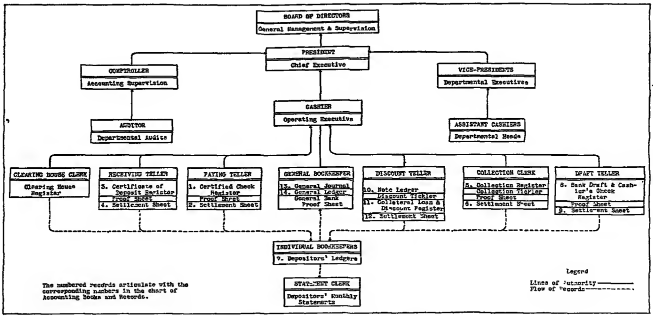


FIG. 20.—Organization chart—commercial bank.

running for various periods of time, and the collection of notes and drafts.

The organization chart (Fig. 20) applies in general to all banks, down to and including the office of president. The balance of the chart, following the office of the president, will, of course, depend upon the particular needs of the bank, and the character of the business conducted.

The Clearing House.—Clearing houses are institutions in which the mechanism is provided to offset debtor accounts and creditor accounts, by exchanging checks or other instruments or obligations, leaving only the balances resulting from the operation to be paid or delivered in kind. The term is also used to designate the building in which the actual exchanges take place, and the voluntary association of the banks which comprise the membership. Each member bank assumes, for purposes of accounting, that all checks payable by its neighbors are drawn upon one hypothetical institution, the clearing house, the bank, in turn, receiving all checks drawn upon itself from the same source. This result is accomplished by putting all checks drawn upon each member of the clearing house in a separate package, and listing each total on the credit side of a sheet opposite the name or clearing house number of the bank on which the checks embraced in such total are drawn. The grand total is then recorded on the bank's books, as "exchanges for the clearing house."

The following illustration exhibits the working of the clearing house system. The messengers of Banks Nos. 1, 2, 3, and 4 meet at the clearing house at the appointed time, each bringing the checks drawn upon the other member banks. The sum of all checks brought to the clearing house is $71,295; and, after each bank is credited with the checks drawn on other member banks, and charged with checks presented against them, the result is as follows:

Member Banks	Amount Delivered, Cr.	Amount Received, Dr.	Balances Dr.	Balances Cr.
Bank No. 1, checks drawn on Bank No. 2	$ 5 900	$ 5 820		
checks drawn on Bank No. 3	4 100	4 500		
checks drawn on Bank No. 4	9 825	4 500		
Total amount of checks presented	$19 825	$14 010		$4 915
Bank No. 2, checks drawn on Bank No. 1	$ 5 820	$ 5 900		
checks drawn on Bank No. 3	6 400	8 750		
checks drawn on Bank No. 4	7 100	6 780		
Total amount of checks presented	$19 320	$21 430	$2 110	
Bank No. 3, checks drawn on Bank No. 1	$ 4 500	$ 4 100		
checks drawn on Bank No. 2	8 750	6 400		
checks drawn on Bank No. 4	4 270	3 200		
Total amount of checks presented	$17 520	$13 700		3 760
Bank No. 4, checks drawn on Bank No 1	$ 4 500	$ 9 825		
checks drawn on Bank No 2	6 780	7 100		
checks drawn on Bank No. 3	3 260	4 270		
Total amount of checks presented	$14 630	$21 195	6 565	
Total of checks presented by all banks	$71 295	$71 295	$8 675	$8 075

A few hours are allowed the banks after the exchange has taken place for the settlement of balances. All debtor banks must pay their balances in acceptable funds to the manager of the clearing house; and the creditor banks must send to the clearing house and receive payment for their credit balances. Unpaid items are accounted for directly between the two banks involved, and are not returned through the clearing house. The clearing house acts merely as the agent for the debtor banks, and is not liable in any way for the payment, or genuineness, of the checks which have been exchanged.

Legal Status.—National banks and most, if not all, state banks are limited as to the character of their assets, for the reason that they can own no real estate, with the exception of their own office buildings. National banks are also prohibited from buying real estate mortgages; but they may acquire real estate in the collection of debts, and hold it for a reasonable length of time. They are also prohibited from loaning money on their own shares, or from making loans above one-tenth of their capital and surplus to any one person, firm, or corporation.

Banks may loan money on any kind of security, except as forbidden by law, and in any amount, except as restricted by the statutes. Banks may charge the rate of interest which is allowed by the laws of the state in which they operate, but to charge

above that amount is usury. The penalty under the National Bank Act for charging usury is loss of the right not only to the excess charged, but to all interest. In the event that usury is actually paid to the bank, the borrower may recover back twice the amount of interest he has paid.

Under the Federal Reserve Act, every national bank must be a member of the Federal Reserve Bank of the district in which it is located, and is obliged to pay to its Federal Reserve Bank a certain portion of its legal reserve, which portion, however, it still counts as part of its reserve. This obligation supersedes the earlier requirement that national banks must invest a part of their capital in United States bonds; which, when deposited with the Comptroller of the Currency, entitled them to the privilege of issuing national bank notes of equal face value. Banks issuing national bank notes are required to maintain at Washington a redemption fund equal to 5 per cent of their outstanding notes, since the obligation to redeem such notes is shared by the United States government.

National and state banks are not subject to the general laws of bankruptcy; and all incorporated banks are dissolved in case of failure under the provision of the law by which they receive their charter.

The semi-public nature of the banking business requires that an official statement of condition shall be published, and by law the Comptroller of the Currency is required to call upon national banks for such a statement at least five times a year. A certain portion of a national bank's statement, constituting a complete balance sheet, is required to be published in a local newspaper by the bank. The statement of condition submitted to the Comptroller of the Currency requires that the accounts contained in the statement conform to the specified classification. This is important, as it is necessary to arrive at the information relative to the nature and kind of loans and investments made by the individual banks. Demand loans are quick assets, as compared with discounted paper, which may not mature before 90 days. On the liability side, the greatest division is in deposits, which must set forth information as to whether they are in the form of demand deposits, subject to check, or time deposits. National banks must also classify their deposits with respect to ownership; that is, make separate returns for individual deposits and deposits of other banks.

The National Bank Act provides that shareholders shall be individually liable, "equally and ratably and not for one another," for the debts of the bank, to the extent of the amount of their stock at the par value thereof, in addition to the amount invested therein. This is known as the "double-liability" feature, and attaches when the bank becomes insolvent, except in cases where transfers have been made to irresponsible persons for the purpose of evading a coming insolvency. The stockholder cannot set up, by way of defense, the bank's fraud in inducing him to subscribe, for the reason that the rights of the creditors have intervened, and are superior to his.

National banks are required to keep on hand at all times a reserve of a definite proportion of their net deposits, in legal-tender money, the proportion depending upon the location of the bank. Banks in small towns must keep a 15 per cent reserve on hand, three-fifths of which may be kept on deposit with another national bank in a reserve city, when such approval is granted by the Comptroller of the Currency. Banks in reserve cities must have a reserve of 25 per cent, one-half of which may be on deposit with an approved national bank in a central reserve city, while banks in central reserve cities must have 25 per cent on hand in their own vaults. The net deposits on which the reserve requirement is based are arrived at by the following calculation: The gross deposits are the totals of the amounts due customers on open accounts, and on demand or time certificates, of certified checks and cashier's checks outstanding, and of the balances due to other banks. From this total may be deducted the amounts due from other banks, provided, however, that it is not more than the amount due to other banks; the clearing house checks and other valid cash items on hand; national bank notes; and silver certificates and subsidiary coins held.

Accounting Books and Records.—The accounting system for a bank should be so devised as to present quickly the condition of each depositor's account, show the relation of the bank to all persons and institutions with which it has dealings, and determine the profits and losses departmentally. All accounting records are so arranged as to be interlocking, in order that the work of one department may serve as a check or verification on another department.

The chart (Fig. 21) presents in diagrammatic form the accounting books and records used in a commercial bank. These are

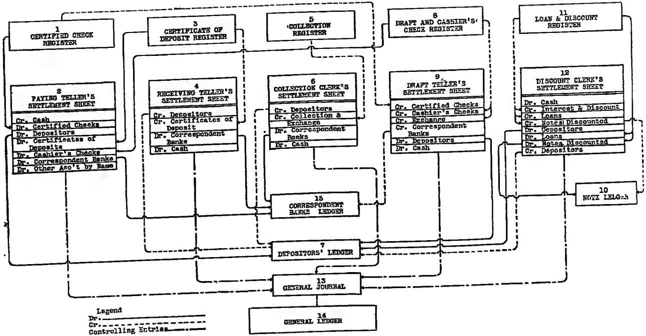


FIG. 21.—Chart of accounting books and records—commercial bank.

arranged and connected so as to show the functions of each, the course of entries from one to another, and the general relation each bears to the others and to the system as a whole.

Journal Entries.—*Receiving Deposits.*—Deposits may be made in four ways: (1) by depositing cash, (2) by depositing checks or drafts, (3) by having the bank collect a note, and (4) by making a loan or discounting a note.

1. The general journal entry for a deposit of cash is as follows:

Cash	$....	
Depositors		$......

The credit to Depositors account would be made in the general ledger and the individual person would be credited in the depositors ledger.

2. The general journal entry for a deposit of an indorsed check or draft on another bank is as follows:

Correspondent Banks	$......	
Depositors		$......

As both of these accounts are controlling accounts, the entries must also be posted to the respective subsidiary ledgers.

If the indorsed check was on the same bank, the general journal entry would be as follows:

Depositors	$......	
Depositors		$......

Of course, such an entry could be ignored so far as the general ledger is concerned, but the debit and credit to the different subsidiary accounts must be made in the depositors ledger.

3. When a note is left with the bank by a customer for collection, only a memorandum entry in the collection register is made. When collection is made, the memorandum entry in the collection register is properly marked and the following general journal entry is made (assuming the bank personally made the collection):

Cash	$......	
Depositors		$......
Collection and Exchange		......

Posting to the individual customer's account in the depositors ledger is also necessary.

If the collection was made through another bank, the general journal entry would be as follows:

Correspondent Banks	$......	
Depositors		$......
Collection and Exchange		......

The subsidiary ledgers, the correspondent banks ledger and the depositors ledger, must be adjusted to correspond with the changes in the controlling accounts.

4. When loans are made or notes discounted, the general journal entry is as follows:

Loans	\$......	
Notes Discounted		\$......
Interest and Discount		...
Depositors		......

The loans and discounted notes must be listed in the loan and discount register and the note ledger, respectively, and the depositors ledger adjusted.

Reducing Deposits.—Deposits may be reduced in six ways: (1) by checks cashed in the bank, (2) by checks received from correspondent banks, (3) by checks in payment for loans, (4) by checks in payment for cashier's checks, (5) by checks in payment for certificates of deposit, and (6) by certified checks.

1. When checks are cashed in the bank upon which they are drawn, the general journal entry is as follows:

Depositors	\$......	
Cash		\$......

The depositors ledger must be similarly adjusted.

2. When checks drawn by a bank's customers are received from a correspondent bank which has cashed them, the general journal entry is as follows:

Depositors	\$......	
Correspondent Banks		\$......

As both of these accounts are controlling accounts, the entries must also be posted to the respective subsidiary ledgers.

3. Checks received in payment for loans give rise to the following entry in the general journal:

Depositors	\$......	
Loans		\$......

Both the depositors ledger and the loan register must be similarly adjusted.

4. Checks received in payment for cashier's checks are recorded in the general journal thus:

Depositors	\$......	
Cashier's Checks		\$......

The customers must be charged in the depositors ledger, and the check listed in the cashier's check register.

5. The exchangé of an open checking account for a certificate of deposit gives rise to the following general journal entry:

Depositors	$ ...	
Certificate of Deposit		$......

The transfer must also be recorded in the depositors ledger and the certificate of deposit register.

6. When ordinary checks are certified by the bank's cashier, the general journal entry is as follows:

Depositors	$. . ..	
Certified Checks		$......

Proper adjustments must be made in the depositors ledger and the certified check register.

Payment of Certificates of Deposit, Cashier's Checks, and Certified Checks.—When the payment of certificates of deposit, cashier's checks, and certified checks is made in the bank of issue, the general journal entry is as follows:

Certificate of Deposit	$......	
Cashier's Checks	......	
Certified Checks	......	
Cash		$......

Notations of payment must be made in the certificate of deposit register, cashier's check register, and certified check register.

Assets.—The outstanding feature of the resources of commercial banks is the liquidity of the assets. In large banks, the fixed assets (banking house, etc.) are about one-half of 1 per cent of the total assets, while cash in the vaults or on deposit in other banks is about 30 per cent. The most important asset, about 60 per cent of the total resources, is the loans and discounts item.

Liabilities.—The liabilities of commercial banks are practically all current liabilities; indeed, about 75 per cent of them are represented by the single item, deposits. Liabilities, which are important from an accounting point of view, are the reserves for taxes, interest accrued, and the deferred credit to income, unearned discount.

Proprietorship Accounts.—In point of size, the net worth accounts of commercial banks are comparatively unimportant, as they frequently do not equal 10 per cent of the total assets of the bank. The separation of permanent additions to capital into the Surplus account and temporary additions into the Undivided Profits account is important. The published reports,

and the statements required to be filed with the Comptroller of the Currency, list the net worth accounts among the liabilities, a practice which seems unfortunate.

No. 292.

REPORT of condition of "The ______________________________

Reserve District No. .... At ____________________, in the State of __________,

Enter Charter Number of Bank Here.

No. .... DR. at the close of business on ______________, 1921.

RESOURCES.		Dollars.	Cts.	
1. a Loans and discounts, including rediscounts (except those shown in b and c)	$			
b Acceptances of other banks discounted				
c Customers' liability account of acceptances of this bank purchased or discounted by it.				
Total loans (see schedule No. 5)				
Deduct (contingent liabilities): d Notes and bills rediscounted with Fed. Res. Bank (other than bank acceptances sold) (see schedule No. 10).	$			
e Notes and bills rediscounted other than with Fed. Res. Bank (other than bank acceptances sold but including rediscounts with War Finance Corporation (see schedule No. 10).				
f Acceptances of other banks sold with indorsement of this bank.				
g Foreign bills of exchange or drafts sold with indorsement of this bank, not shown under item d above.	$			1
2. Overdrafts, secured, $________; unsecured, $________ (see schedule No. 3)				2
3. a Customer's liability account of "Acceptances" executed by this bank, and by other banks for account of this bank, and now outstanding	$			
b Liability of foreign banks and bankers for drafts and bills accepted by this bank to create dollar exchange and now outstanding.				3
4. U. S. Government Securities owned (see note 1):				
a Deposited to secure circulation (U. S. Bonds)	$			
b All other U. S. Government Securities (including premiums, if any)				
Total (must agree with grand total of column 6, schedule No. 13)				4
5. Other bonds, stocks, securities, etc. (must agree with grand total of column 6, schedule No. 14)				5
6. Banking house, $________; furniture and fixtures, $________				6
7. Real estate owned other than banking house				7
8. Lawful reserve with Federal Reserve Bank				8
9. Items with Federal Reserve Bank in process of collection				9
10. Cash in vault and amount due from National Banks (see schedule No. 2)				10
11. Amount due from State banks, bankers, and trust companies in the U. S. (other than included in items 8, 9, and 10)				11
12. Exchanges for clearing house				12
13. Checks on other banks in the same city or town as reporting bank (other than item 12)				13
Totals of Items 9, 10, 11, 12, and 13	$	(This amount is not to be extended)		
14. Checks on banks located outside of city or town of reporting bank, and other cash items (see schedule No. 1)				14
15. Redemption fund with U. S. Treasurer and due from U. S. Treasurer				15
16. Other assets, if any. (If space is not sufficient, attach schedule and explain each amount entered under this item)				16
TOTAL				

¹Includes Liberty Loan Bonds, Victory Notes, Certificates of Indebtedness, and all other issues of ...

Place for official seal to be affixed by officer before whom acknowledged. See Act February 26, 1881. Notary must not be an officer or director of the bank.

State of ....

County of ....

Sworn to and subscribed before me this .... *day of* ...., *192 , and I hereby certify that I am not an officer or a director of this bank.*

________________________ *Notary Public.*

NOTE.—To avoid discrepancies and unnecessary ...

I, ________________ (Cashier or President)

SCHEDULES attached hereto and those set forth, to the best of my knowledge

NOTE.—This report must be sworn to by the President or Cashier ... officer will suffice), attested by not less than three Directors, and forwarded to the Comptroller of the Currency with the least possible delay (in no event later than ... days from receipt of call), as it is desired to complete the summary of ... as possible after a call has been issued.

FIG. 22A.—A statement of condition (left half).

Balance Sheet.—The statement of condition (Fig. 22) is required by law to be filed by all national banks with the Comp-

troller of the Currency, together with schedules showing: (1) checks on banks located outside of city or town of reporting bank,

TREASURY DEPARTMENT
OFFICE OF THE COMPTROLLER OF THE CURRENCY
Form 2130.—Statistical—Ed. 20,000—Revised 10-11-21

"

INSTRUCTIONS:

Complete title, location, and *date* for which report is rendered *must be filled in*. None of the printed items on this blank are to be scratched or amended in any manner. Any amounts which can not be properly included in the printed items must be entered under Other Assets or Liabilities with schedules attached explaining each entry. Where no amounts are entered, the word NONE must be written or stamped. These instructions must be observed or new report will be required.

CR.

LIABILITIES.		Dollars.	Cts.	
17. Capital stock paid in				17
18. Surplus fund				18
19. Undivided profits	$			
a Reserved for interest and taxes accrued				
b Reserved for	$			
c Less current expenses, interest, and taxes paid	$			19
20. Circulating notes outstanding (see schedule No. 4)				20
21. *Amount due to Federal Reserve Bank (deferred credits)*				21
22. Amount due to National Banks				22
23. Amount due to State banks, bankers, and trust companies in the United States and foreign countries (other than included in items 21 or 22)				23
24. Certified checks outstanding				24
25. Cashier's checks on own bank outstanding				25
Total of Items 21, 22, 23, 24, and 25	$	(This amount is not to be extended.)		
DEMAND DEPOSITS (other than bank deposits) SUBJECT TO RESERVE (deposits payable within 30 days):				
26. Individual deposits subject to check				26
27. Certificates of deposit due in less than 30 days (other than for money borrowed)				27
28. State, county, or other municipal deposits secured by pledge of assets of this bank				28
29. Deposits requiring notice, but less than 30 days				29
30. Dividends unpaid				30
31. Other demand deposits				31
Total of demand deposits (other than bank deposits) subject to Reserve, Items 26, 27, 28, 29, 30, and 31.	$	(This amount is not to be extended.)		
TIME DEPOSITS SUBJECT TO RESERVE (payable after 30 days, or subject to 30 days or more notice, and *Postal Savings*):				
32. Certificates of deposit (other than for money borrowed)				32
33. *State, county, or other municipal deposits secured by pledge of assets of this bank*				33
34. Other time deposits				34
35. Postal savings deposits				35
Total of time deposits subject to Reserve, Items 32, 33, 34, and 35.	$	(This amount is not to be extended.)		
36. United States deposits (other than Postal Savings), including War Loan Deposit Account and Deposits of United States disbursing officers.				36
37. U. S. Government Securities borrowed (see note 1)				37
38. Bonds and securities other than United States borrowed				38
39. Bills payable, other than with Federal Reserve Bank (including all obligations representing money borrowed other than rediscounts) (see schedules Nos. 6 and 10).				39
40. Bills payable with Federal Reserve Bank (see schedules Nos. 6 and 10)				40
41. *Advances received from War Finance Corporation* (see schedules Nos. 6 and 10)				41
42. Letters of Credit and Travelers' Checks sold for cash and outstanding				42
43. a "Acceptances," executed by *this* bank for customers and to furnish dollar exchange (see schedule No. 9)	$			
b Less acceptances of *this* bank purchased or discounted (see Item 1c)				43
44. *Acceptances executed by other banks for account of this bank*				44
45. Liabilities other than those above stated (If space is not sufficient, attach schedule and explain each amount entered under this item)				45
TOTAL				

...ernment Securities, but NOT District of Columbia nor any Territory or Insular Possession bonds.

...rrespondence, the totals of Resources and Liabilities and of all schedules should be carefully verified.

________, *of the above-named bank, do solemnly swear that the above statement is true, and that the ... on back of this report fully and correctly represent the true state of the several matters therein contained and ... and belief.*

Correct.—Attest: ________, *Cashier*

To be attested by not less than three Directors other than the officer verifying the report.

________ *Director.* ________ *Director.* ________ *Director.*

FIG. 22*B*.—Statement of condition (right half).

and cash items; (2) cash in vault, and amount due from national banks; (3) overdrafts; (4) circulating notes; (5) loans and dis-

counts; (6) obligations representing money borrowed; (7) rates of interest charged on loans; (8) contingent liabilities; (9) acceptances executed for customers; (10) rediscounts and bills payable; (11) loans exceeding the limit prescribed by Section 5200 of the Revised Statutes; (12) liabilities of officers and directors, annual salaries, and shares owned; (13) United States government securities; and (14) bonds, stocks, and securities, etc. (other than United States).

Expense.—The expense accounts of a commercial bank include merely salaries, rent, office supplies, taxes and interest paid, and therefore cause little difficulty to the auditor. Occasionally, an auditor finds a bank which allocates expenses to the operating departments, with the idea of computing the profit and loss on each department.

Income.—The income of commercial banks is derived mainly from interest and discount on loans, foreign and domestic exchanges, and profit on sale of investments. Interest and discount are, of course, the principal sources of income.

In making loans, the bank does not act as the agent of the depositor, but assumes the part of principal and owner of the money, for the safe return of which it is, however, responsible to the depositor. Loans may be classified as to maturity, such as time, demand, and call; as to security, as stock exchange collateral, warehouse receipts, and mortgage loans; as to obligation, as single-name, joint or syndicate, indorsed or two-name paper; as to borrowers, as broker's loans, dealer's loans, own paper, and bought or "commercial" paper, etc.

"Loans and discounts" is a term used by banks to describe all loans, but the words are not synonymous. A discount, in the narrow use of the word, means an advance of money on a note, with or without collateral, when the charge made, calculated at a fixed rate for a fixed period, is deducted in advance. A loan, however, means an advance of money on a note, usually accompanied by collateral, payable on demand, when the charge made (sometimes calculated at varying rates) is paid on the maturity of the note.

NAME OF BANK

Statement of Earnings

For Period Ending.. ....19....

Interest Receivable:			
Discounts	$.... .		
Loans	..		
Stock—Bonds	.. ...		
Total Interest Receivable		$	
Interest Payable:			
Domestic Bank	$.. ...		
Individuals	. ....		
Time Deposits	.....		
Borrowed Money	.... .		
Borrowed Bonds	....		
Total Interest Payable		....	
Net Interest Earnings			$ . ...
Commissions		$... ..	
Exchange		... ..	
Rents Received		. .	
Sundries		. ...	...
Total Interest Earnings and Commissions			$......
Deduct:			
Salaries		$	
Taxes		.....	
Other Expenses		.... .	
Total Expenses		.	....
Net Earnings			$......
Add:			
Other Credits:			
Losses Recovered	$.... .		
Sundries	.... .		
Total		$......	
Deduct:			
Other Debits:			
Dividends Paid	$......		
Sundries	.....		
Total		......	......
Net Addition to Undivided Profits			$.... .

Special Auditing Features.—The public accountant who audits a bank is required to make a more detailed investigation than the

National or State Bank Examiner. The examination made by the official bank examiner covers both solvency and obedience to the law, but no pretense is made of covering internal defalcations. It is more or less accidental that a bank examiner discovers internal defalcations, as he is concerned primarily with control proof, physical inspection of assets, and verification of liabilities—seldom looking further. Providing the requirements of the Banking Law as to reserves, the 10 per cent limitation on loans, and other specific legal demands are satisfactorily met, his duty is fulfilled.

The first step in an audit of a bank ordinarily begins with the assumption by the auditor of control of the tangible assets. This control is usually exercised by his affixing his seals to the vaults, safes, boxes, and other receptacles containing the tangible assets of the bank. The first asset item verified is cash. As the counting of the cash is merely mechanical, some auditors do not count every bill in the packages, but merely the packages. It is, however, advisable to count a package here and there, in order to catch any systematic short counting in the packages. The exchanges for the clearing house should be verified, with a view of disclosing any items which are fictitious and deliberately executed to cover a shortage. These items are uncovered by being traced to the originating credit. Other items may be discovered which are valueless, and which should be charged to profit and loss.

Items in transit and items outstanding for collection may be verified, by checking the remittances for a certain period of time after the audit, and then sending verification notices on the unpaid outstanding items; or verification blanks can be sent out at once to the banks to which the items had been sent for collection. The latter is the preferable way. The amounts due from banks are verified by totaling the balances, and requesting statements from the various banks.

In the audit of the bank's investments, the important item to note is that the securities correspond with the description and number carried on the bank's record. By carefully comparing the name and number, the auditor can detect any temporary substitution of securities. The auditor should see that no paper profits are shown on the books, on securities which have not been sold.

In auditing the loans and discounts, the auditor should verify the clerical accuracy of the items, and also verify the discount register and the customers liability ledger. He should also ascertain that the instruments are genuine and in correct form, properly indorsed, and not past due. In addition, the auditor should carefully scrutinize the instruments to see that they are, in fact, unpaid. The worth or value of the loans viewed as credit risks should also be determined.

The chief point in auditing the liabilities is to discover any outstanding liabilities not shown upon the books. In considering assets, this inquiry is in the opposite direction. The asset gives, in itself, a clue to its worth. The liability, however, does not appear, but must be unearthed, usually with only a slight clue. In auditing individual deposits, the auditor cannot, for obvious reasons, send out statements to all the customers. The usual procedure is to foot the depositors ledger and compare with the general books. Any changes in accounts which fluctuate very little are noted, as such accounts are usually selected for manipulation. Old accounts which have been closed out should also be scrutinized. In auditing outstanding instruments, cashier's checks, certificates of deposit, dividend checks, etc., the usual practice is to total the outstanding instruments and compare with the total carried on the general books; and, if the amounts agree and there are no suspicious circumstances, the audit is carried no further. However, a defalcation or a deficit can be covered by the suppression of a liability. Merely marking an outstanding instrument "Paid" will accomplish this. A supporting voucher may be substituted for the genuine one still outstanding. The paid entries, particularly of items outstanding for some time, should be carefully scrutinized and the supporting vouchers examined. In auditing income and expense items, it is, in most instances, impracticable to check all items of interest and exchange.

CHAPTER VIII

TRUST COMPANIES

Nature of Business.—A trust company may be defined as a corporation authorized by law to act in a fiduciary capacity. The original function of a trust company was to act as an incorporated trustee; but, in recent years, the original function has been extended to cover all the activities of a commercial bank. Therefore, the present-day trust company may be defined as a financial corporation authorized to exercise both banking and trust functions.

The laws of the various states provide that the trust operations must be kept entirely separate from the company's own affairs, that is to say, of all its banking operations. This separation of the trust functions from all other activities of the company are carried out to such an extent that the trust department and the banking department appear to be two separate institutions. Because the banking functions of a trust company do not differ from those treated under "Commercial Banks," in Chapter VII, only the functions and activities of the trust department will be discussed.

The usual functions of the trust department comprise the execution of individual trusts, the execution of corporate trusts, and the care of securities and valuables.

The following excerpts from "The Modern Trust Company," by Kirkbride, Sterrett, and Willis, summarize the functions of trust companies:

Individual Trusts.—The execution of individual trusts is the function originally assumed by trust companies. . . . The earliest power granted these companies was to receive moneys or other property, real or personal, in trust. The trust company now also acts as executor and administrator of the estates of decedents. . . . As "executor" appointed by the will of a decedent, it takes out letters testamentary upon probate of the will, advertises, files inventory and appraisement, pays debts, collects claims, makes the requisite accounting to the probate or orphans' court, and makes distribution of the estate in accordance with the terms of the will and the court's decree. As "administra-

tor" acting under appointment of the registrar of wills or probate court, it performs similar duties, distributing the estate in accordance with decedent's will, if there is one, or, if there is none, in accordance with the Intestate Laws of the state, which specify the order of succession and distributive shares, in the case of estates of decedents leaving no wills.

As "trustee" under a will, the trust company carries out the provisions of the will, investing and managing the estate or particular fund in accordance with the directions of the testator. As such, it may hold real and personal property. As "trustee" under a deed or private agreement, a contract is entered into between the company and the owner of the property, by which the title to the property is vested in the corporation subject to the terms recited in the instrument. . . . Accounting to the probate, or other proper court, by testamentary trustees is generally regulated by law. Accounting by trustees under deed is usually regulated, to some extent at least, by the provisions of the instrument creating the trust. . . . As "agent" merely, the company takes charge of property, real or personal, for its owner; but such agency does not imply nor ordinarily include authority to sell or convey title. As "assignee," the trust company takes possession of the property assigned for the purpose of carrying out the terms of the deed of assignment in the interest both of the assignor and the creditors of the assignor. The deed of assignment is an acknowledgment of an embarrassed or insolvent condition, and the efforts of the assignee are directed to realizing as much as possible from the assets entrusted to its management.

As "receiver" the duties may be very similar to those of assignee, although they are usually broader in scope. The business may not be insolvent, and the application for the appointment of a receiver may be due to temporary difficulties only. By such an appointment the property is preserved intact and equal treatment is afforded creditors. An able receivership often results in the adjustment of difficulties and the return of the property to its owners on a paying basis. While in the case of assignee the appointment is by the individual, partnership, or corporation executing the deed of assignment which specifies the powers and duties of the assignee, in the case of receiver the appointment is by a court, and the company so appointed acts as an appointee or ministerial officer of the court, and as such is directly subject to the court's orders.

As "custodian" or "depositary," the trust company sometimes holds property the title to which is in dispute, delivering the same when the ownership is legally determined. In taking charge of escrows or conditional instruments or deeds delivered to a third party until the condition is performed, the trust company acts in a similar capacity, as the joint representative of both parties.

Corporate Trusts.—Among the most important functions of a trust company are those relative to the business of other corporations. . . . As "trustee" under corporate mortgages and trust deeds, the trust

company acts for the bondholders. It is customary for it to authenticate each bond issued subject to the provisions of the mortgage, to represent the bondholders in case of default, and to exercise such other functions as may be provided in the mortgage.

As "fiscal agent," it dispenses coupon and interest payments on bond issues, and dividends on stock. It receives sums set aside as sinking funds to provide for the retirement of obligations at maturity, or, when bonds are subject to redemption, draws the specified amount by lot and pays the principal.

As "registrar," the trust company authenticates certificates of stock and bonds in order to prevent an over-issue, and to reduce the chance of loss or theft. As "transfer agent," the company attends to perfecting transfers of ownership for stock and bond issues or parts thereof. As "manager of underwriting syndicates," the trust company issues the prospectus and markets the securities of corporations which are being launched, or of established companies which are putting out new securities. . . . As "assignee and receiver," the trust company acts in the same capacity for corporations as for individuals and firms or partnerships, assisting in winding up insolvent businesses and in conducting embarrassed ones.

Care of Securities and Valuables.—The functions already recited have resulted in the assumption of the duty of caring for property other than that of the estates held in the trust department. In the safe deposit department, individual safes are rented, bulky packages—not containing stocks or bonds—are received on storage, certificates of deposit covering securities are issued, and provision is made for access to, and examination of, the property so deposited. For personal property received on storage, the charges are either according to bulk or value. Wills are usually receipted for and kept without charge.

Organization.—The organization chart (Fig. 23) presents the organization of a typical trust company, doing a general banking and trust business, together with its functional divisions and activities.

The internal organization of a trust company is quite similar to that of ordinary banks, except that the variety of duties undertaken necessitates the maintenance of separate departments (required by law in many states) for the transaction of trust, general banking, safe deposit, and other lines of business. Subject to the state laws, a trust company is governed by by-laws adopted by the stockholders, is under the general direction of a board of directors, and is administered by a group of officers whose number and duties are determined by the needs of the business.

Legal Status.—Trust companies are organized under the general corporation laws of the various states and operate under state supervision. In most of the states, the older institutions were chartered by special acts of legislature and the general

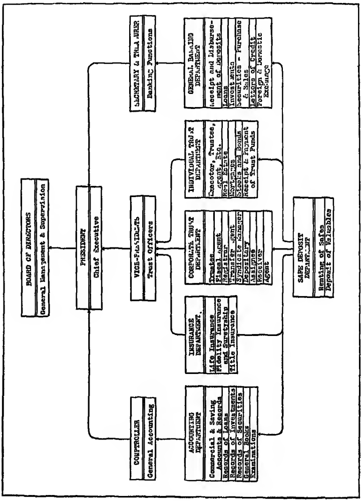


FIG. 23.—Organization chart—trust company.

incorporation laws, and, as their business developed and their scope was broadened, special acts of legislature were effected to give them additional powers. General trust company laws have been enacted by most of the states to provide for the

incorporation, powers, government, and regulation of such companies. These general laws also contain provisions intended to safeguard the business, such as applying a portion of the earnings each year to the building up of a surplus until it reaches a certain proportion (frequently 20 per cent) of the capital. Stockholders are subject to the same liability as in national banks, *i.e.*, they are liable up to the par value of their holdings, in addition to the original investment. Restrictions of various kinds are placed on the making of loans and investments, and the investments of the trust department are specially restricted. Adequate reserves are also required.

Most of the state laws stipulate that the various trust funds must be kept absolutely separate from the funds of the company and of other departments, and that the securities of certain estates be so marked and recorded as to designate clearly the owner, so that in case of the failure of the company the trust funds would not be affected. Certain states require the deposit of cash or securities with state authorities in certain specified amounts as special security for the faithful performance of its fiduciary obligations, before the trust company may transact any trust business.

The Federal Reserve Act provides the means by which trust companies may join the Federal Reserve System. Liberal regulations have been made, so that trust companies in sound condition and possessing unimpaired capital equal to national bank requirements may become members of the system and enjoy all the advantages accorded to national banks, with no material change in the scope of their business. The more important of the general conditions imposed by the Federal Reserve Board are the limitation of a maximum loan to any one person or individual, the stipulation that the trust company shall initiate no new kind of business (which might become an element of danger) without consent, and the restriction of acceptance lines to 100 per cent of capital and surplus. Trust companies, as members of the Federal Reserve System, maintain the required reserves against deposits, and subscribe to stock of the Federal Reserve Bank amounting to 6 per cent of the trust company's paid-up capital and surplus. The other duties of membership are that they shall report twice each year to the Reserve Banks as to earnings and dividends, submit three condition reports yearly, and report each week on reserve condi-

tion. The member trust company is subject to examination by Reserve authorities. Arrangements have, however, been made with most of the states to accept the reports of State Bank Examiners in lieu of special examinations by Reserve examiners, and for cooperative examinations made jointly by Reserve and State authorities.

Accounting Books and Records.—The accounting books and records of the banking department of a trust company are similar to those in use in a commercial bank. Since these apply to the banking department of a trust company, they are not repeated here. The trust operations, however, are kept entirely separate from the company's own affairs. Custom rules and law provides that there shall be no intermingling, since a trust company, acting as executor or administrator for estates placed in trust, is not permitted to speculate in the funds entrusted to its care. Should the trust company speculate in funds entrusted to its care, it becomes liable for all losses incurred thereby, and must account to the estates for all profits which it makes in such speculation. For this reason, all uninvested assets (cash deposits) belonging to the various estates placed in trust are deposited with other banking institutions and not with the banking department of the trust company. This separation of the activities of the two departments is carried out to such an extent that the trust department and the banking department appear to be two separate institutions. This is evidenced by the fact that the books of the trust department are complete in themselves and are independent of the books of the company.

In the trust department, a complete segregation of all trust funds must be maintained, whereby the property of each particular estate may be shown separately and apart from any property belonging to the trust company and every other trust estate. To show this segregation of all trust property, it is necessary to maintain corporate and individual trust ledgers, which will present clearly all transactions with each individual trust. The accounts with individual trusts are kept not only for the convenience of the trust department, but also for the benefit of the parties who have a legal right to such information. Whenever a fiduciary relation is legally established, the duty to account honestly and fully is imposed instantly. Unlike other branches of accounting, every entry is governed by an established principal of law or rule of court, or regulation issued by authority

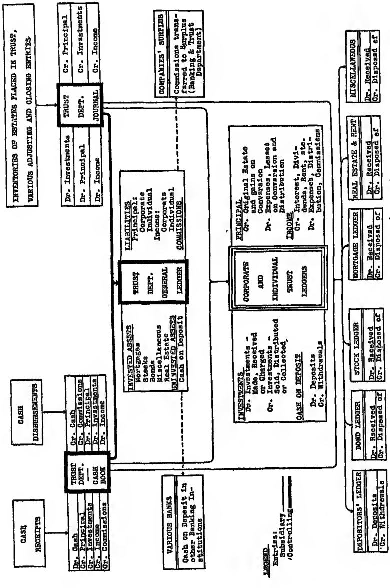


FIG. 24.—Chart of accounting books and records—trust company.

vested in public officials. This relation between the law and trust accounting presents a legal as well as a practical point of view. The legal view is necessarily predominant, for no matter what may be the practical question involved, the account must be in harmony with every legal requirement.

The functions of the various accounting books and records shown in the chart (Fig. 24) are better illustrated by means of a series of journal entries, using as a typical example a trust company acting in the capacity of executor for the estate of John Jones, who died January 1, 1923. It is assumed, for purposes of illustration, that this estate was the only one handled by the trust department of the company.

The "synopsis of the will" of John Jones, deceased, reads as follows:

The will, after making provision for payment of all debts, funeral expenses, and erection of marker at the cemetery, contains the further provisions:

1. The residence, household furniture, and personal effects are bequeathed to wife of decedent, Mary Jones.

2. All bank deposits shall be collected and invested in securities legal for trust funds. Income from all stocks, bonds, mortgages, bills receivable, and rents shall be paid annually to wife of decedent, Mary Jones, during her lifetime. In the event that the income does not equal $2,000 per year, the deficiency shall be paid from the principal.

3. Upon the death of Mary Jones, the balance of said trust fund, including all accrued income, shall vest in the son of the decedent, Paul Jones.

The first act of the trust company as executor for the estate of John Jones is to have prepared an inventory of the estate, setting forth the values of the various assets, both real and personal, at their book value, appraised cost or assessment, as follows:

TRUST NO. 1505—INVENTORY OF ESTATE OF JOHN JONES, JANUARY 1, 1923—SHEET NO. 1

No.	Kind	Par Value	Interest Payor and Description	Principal Due	Int Rate, Per Cent	Appraised or Book Value
1	Mortgage	$5 000.00	John Smith, First Mortgage	1–1–25	5	$ 5 000.00
			interest accrued to 1–1–23			250.00
1	Bond	1 000.00	Temple Manufacturing Company, General 4s	1–1–30	4	080 00
			interest accrued to 1–1–23			40.00
1	Bond	1 000 00	City of Chicago, 6's	1–1–40	6	1 010.00
			interest accrued to 1–1–23			60.00
1	Miscellaneous	500.00	George Favor, Promissory Note	4–1–23	6	500.00
			interest accrued to 1–1–23			7.50
30	Shares Stock	3 000 00	J. S. Carey Company, Common Stock			3 150.00
1	Miscellaneous	1 500.00	Aetna State Bank, on deposit			1 500.00
1	Miscellaneous	2 350.00	Furniture and personal effects			2 350.00
1	Real Estate	6 000.00	Residence, 17 Lowe St., Chicago			6 000.00
1	Real Estate	1 200.00	Building Lot, 39 Lowe St., Chicago			1 200.00
			Total Principal, or Corpus, of Estate			$22 047.50

The various assets at their appraised or book value, as shown by the inventory of the estate, are entered in the trust journal to show the original amount with which the trust company is charged. The principal, or corpus, of an estate is the total of all assets belonging to the decedent at the time of his death, whether known at that time or subsequently discovered. The income of an estate consists of interest and dividends on securities and rentals, less expenses of real estate. Attention is directed to the fact that interest and similar income are accrued to the date of the decedent's death, and form a part of the principal, or corpus, of the estate. However, all interest and other items of income accrued subsequent to the date of the inventory are credited to gross income. This is one of the important elements in fiduciary accounting and should be carefully watched. For example, when the interest on the promissory note shown in the inventory is paid on April 1, 1923, only $7.50, less the trust company's commission, is credited to income, the balance having been previously credited to the principal, or corpus, of the estate.

The opening entries for the estate on the trust journal are shown by the following journal entries:

Mortgages	$5 250.00	
Bonds	2 090.00	
Stocks	3 150.00	
Real Estate	7 200.00	
Miscellaneous Assets	4 357.50	
Principal (Corpus)		$22 047.50

In accordance with the terms of the will, the residence, furniture, and personal effects of the estate are bequeathed to the wife of the decedent, Mary Jones. The following entries are made in the trust journal to record the distribution of these assets to the widow:

Principal (Corpus)	$8 350	
Miscellaneous Assets		$2 350
Real Estate (Residence)		6 000

Interest on the mortgages and bonds to January 1, 1923, is collected by the trust company, 5 per cent of which is withheld as its commission. It should be noted that the interest collected in this instance formed a part of the principal of the estate at the time the inventory was taken, and cannot be considered as income. The following entries are made in the trust cash book to record the collection of the interest:

Cash	$350	
Mortgages		$250
Bonds		100

The commission due the trust company on the above transaction is recorded at the same time as follows:

Principal (Corpus)	$17.50	
Commissions		$17.50

The decedent's bank account at the Aetna State Bank is collected by the trust company, in accordance with the terms of the will. The following entries are made in the trust cash book to record this transaction:

Cash	$1 500	
Miscellaneous Assets		$1 500

The will further directs that the money collected from bank deposits be invested in securities which are legal for trust funds. The $1,500 was, accordingly, invested by the trust officer in United States government Liberty bonds, fourth issue, 4¼

per cent, due 1938, at par. This transaction is entered in the trust cash book, as follows:

Bonds	$1 500	
Cash		$1500

The interest and principal on the promissory note given to the decedent by George Favor is collected on April 1, 1923, by the trust company and entered in the trust cash book, as follows:

Cash	$515	
Miscellaneous Assets		$507.50
Income (Gross)		7.50

The trust company receives as its commission 5 per cent on the interest collected, amounting to 75 cents. The entries for this transaction are made by charging principal and income of the estate and crediting commissions, as follows:

Principal	$0.38	
Income	0.37	
Commissions		$0.75

The building lot mentioned in the inventory, was leased to a contractor on April 1, 1923, for six months at $10 per month, the rent being paid in advance. This transaction is entered in the trust cash book, as follows:

Cash	$60	
Commissions		$ 3
Income		57

The Temple Manufacturing Company bond proved to be an undesirable investment, so, upon order from the court, the trust company sold this bond for $975. The entries in the trust cash book for this transaction are as follows:

Cash	$975	
Principal	5	
Bonds		$980

It should be noted that the loss on the sale was charged to Principal. In other words, if assets included in the corpus of the estate are sold at less than inventory value, the difference is not a loss chargeable to or against income, but is a decrease of the principal.

The cost of letters testamentary was paid to the registrar of wills, and all expenses were paid in connection with the last sickness of the decedent, the funeral, and the erection of a marker

at the cemetery. All debts due by the decedent, including the expenses of his last illness and of his funeral, are charged against the principal of the estate. The above-mentioned expenses amount to $1,300 and are entered in the trust cash book, as follows:

Principal (Corpus)	$1 300	
Cash		$1 300

It will be noted that no deduction was made from the assets of the estate, shown in the inventory, for debts. This is due to the fact that debts appear on the books of the trust company only at the time they are paid. This procedure differs from commercial practice, and is based upon the theory that the trust company, acting as executor or administrator, is responsible for the assets turned over to it and not for the net value of the estate. The only exception to this procedure occurs in the case of real estate which does not come into the hands of the trust company, but passes immediately to the legatees or heirs-at-law.

The trust company repaired the sidewalk in front of the building lot at a cost of $10, and paid the taxes on this property, amounting to $30. These expenses were entered in the trust cash book as follows:

Income	$40	
Cash		$40

The contractor upon the expiration of his lease, October 1, 1923, offered to purchase this property from the estate for $2,000. The trust company accepted the contractor's offer. This transaction was entered in the trust cash book as follows:

Cash	$2 000	
Real Estate		$1 200
Principal		800

It should be noted that the gain on the sale was credited to Principal. In other words, if property included in the corpus of the estate is sold at a higher price, the increase is not a profit to be considered income, but is an addition to the corpus itself, classed as an increase in principal.

A 6 per cent dividend on common stock was paid by the J. S. Carey Company, on December 28, 1923, which was recorded in the trust cash book as follows:

Cash	$180	
Income		$171
Commissions		9

In connection with the accounting for dividends, attention is directed to the fact that dividends declared after the testator's death, even though they are earned prior to that date, are income. Conversely, if the dividends are declared prior to the date of decedent's death, they become principal, even though they are paid after the date of death. The question as to whether extraordinary dividends, either in stock or cash, belong to corpus or income, or are to be apportioned between them, has been decided differently in different states. The only safe thing to do, in case the corpus and income belong to different persons, is to procure a ruling of the court as to the classification of such dividends. In Great Britian, however, dividends received on stock are apportioned between principal and income, when they are paid, but in the United States it is generally considered that dividends belong to the period in which they are declared, and do not accrue from day to day.

Interest amounting to $373.75 was collected by the trust company at the close of the current year on the mortgage and bonds, and this item of income was entered in the trust cash book as follows:

Cash	$373.75	
Income		$355.06
Commissions		18.69

The balance sheet at the close of the year, which was prepared from the accounts shown in the trust department general ledger, showed the following condition:

Trust Department Balance Sheet
As of December 31, 1923

	Assets		Liabilities and Commissions	
Invested Assets:			Principal	$13 174.62
Mortgages	$5 000			
Bonds	2 510			
Stocks	3 150	$10 660.00	Income	550.19
Uninvested Assets:				
Cash on Deposit		3 113.75	Commissions	48.94
		$13 773.75		$13 773.75

In accordance with the terms of the will the trust company was to pay the widow, Mary Jones, $2,000 annually from the income of the estate; but, in the event that this income proved insufficient, the deficiency was to be paid from the principal

of the estate. It will be noted from the balance sheet shown above that the net income received amounted to only $550.19, so that $1,449.81, the balance necessary to make up the annual payment to the widow, had to be paid from the principal of the estate. The entries in the trust cash book to record this transaction are as follows:

Income	$ 550.19	
Principal	1 449.81	
Cash		$2 000

On January 5, 1924, the widow received a dividend check from the Dunn Manufacturing Company, amounting to $5, and, upon instituting a search of the decedent's personal effects, one share of the above company's stock was found which had not been included in the inventory filed with the court. The dividend check and the share of stock (market value $110) were turned over to the trust company by the widow, and the court was informed of the discovery. The dividend check and the share of stock were entered in the trust cash book and the trust journal, respectively, as follows:

Cash	$ 5	
Income		$ 5
Stocks	110	
Principal		110

After several years had elapsed, the principal of the estate was reduced to $500, as the income proved insufficient in each of the preceding years to meet the annual payment to the widow, making it necessary to pay the balance each year from the principal. In view of the above circumstances, the court ordered the trust company to pay to the widow the remaining balance of the principal, with all income received to date. A check amounting to $505 was given to the widow to cover the balance of the principal and income, and the accounts of the trust company acting as executor for this particular estate were closed. The necessary entries for the closing of the executorship and the payment to the widow are as follows:

Principal	$500	
Income	5	
Cash		$505

At the close of the administration of an estate or trust, the trust company is required to render an accounting to the court which appointed it as executor or administrator. The form of

report for the court will differ according to the laws of the various states. Some states require only a simple statement of cash receipts and disbursements, while others demand statements of a more complex nature. Briefly, the New York State form provides for the following schedules:

(*a*) Assets taken over.
(*b*) Increases of assets (or decreases).
(*c*) Income received.
(*d*) Payments to legatees—principal.
(*e*) Payments to legatees—income.
(*f*) Expenses—principal.
(*g*) Expenses—income.

with a summary showing:

$$(a \pm b) - (d + f) = \text{Amount of principal reported to the court.}$$
$$c - (e + g) = \text{Amount of income reported to the court.}$$

Trust Department Ledgers.—The various subsidiary ledgers, shown in the lower portion of the chart (Fig. 24), receive their entries from the trust cash book and journal, the latter records constituting the books of original entry. The most important records relating to the individual trusts are the corporate and individual trust ledgers. These ledgers contain separate accounts with each individual trust, and present in detail a record of all transactions affecting the investments, principal, and income of the various corporate and individual trusts. In other words, the property of each particular estate is shown separately and apart from all other property belonging to the trust company and to every other estate. While the character of the forms and records in the corporate trust department may differ to some extent from those used in the individual trust department, due to the diverse character of the business transacted in the former department, the accounting principals and records, so far as trusts are concerned, remain the same in both departments.

The subsidiary ledgers used to record the various securities, bank deposits, real estate, rents, and miscellaneous assets of all trusts, both corporate and individual, receive their entries from the trust cash book and trust journal. The function of these ledgers is to control the various invested and uninvested assets of all trusts. For example, the bond ledgers will show the total of all bonds received and disposed of for all trusts. As each

posting is made, either for assets received or disposed of, the number given the trust is also posted in memorandum columns to identify the transaction with each particular trust. A control over these ledgers is maintained in the trust department general ledger.

The totals of the various columns in the trust cash book and journal are posted direct to the trust department general ledger. This ledger maintains a control over all other ledgers in the trust department, and is the only record in any way related to the general books of the bank. The account in this ledger which relates to the controlling or balance sheet accounts of the company is the account showing Commissions Earned.

Assets and Liabilities.—Because the assets and liabilities of a trust company do not differ from those of a commercial bank, described in Chapter VII, they are not repeated. All assets pertaining to trusts and estates, as well as liabilities, should not be confused with the assets and liabilities of the company. The trust company has only a legal ownership in the assets of the various trusts and estates for which it acts as trustee, while the equitable ownership belongs to those whom the company represents. For this reason, they are never shown on the balance sheet of the trust company, but only in the records and trial balance of the trust department.

Proprietorship Accounts.—The accounts controlling the principal and income of the various estates or trusts, kept by the trust department, do not represent any part of the proprietorship, or net worth, of the trust company, and, therefore, are not shown in the balance sheet of the company. They do, however, take the place of proprietorship accounts used in double-entry bookkeeping to show the extent of the accountability or responsibility of the trust company as fiduciary for the various estates or trusts. Quoting from "The Philosophy of Accounts," by Charles E. Sprague:

> An "estate" account shows the extent of the accountability with which he (the fiduciary) is burdened at any time, and this is a credit account corresponding to the proprietary account in commercial bookkeeping. It is not necessarily a measure of the wealth of the real proprietor, but only that which has come into the hands of the administrator of the trust and has not been duly disposed of. What would be assets of the proprietor are charges against the administrator; but he may sometimes incur liabilities for which the estate is holden, and if he

satisfies these, or those to which the estate was subject, he is entitled to discharge thereby.

Statement of Condition.—The resources, and liabilities, as shown in a statement of condition, of a trust company doing a general trust and banking business, consist of the resources representing the assets of the bank, such as cash in the vaults, balances due from other banks, and loans and investments; and the liabilities, consisting of its debts to the customers or depositors, and to the holders of its obligations. The assets of the trust funds are not, of course, the property of the trust company, and therefore do not appear in the statement of condition.

Expenses.—In order to determine the net earnings of the trust department, it is necessary to prorate the overhead expense of the company over the banking, trust, and other producing departments, upon some equitable basis, if it is desired to ascertain the net profits of each department. The nature of the items making up the overhead expense of a trust company are similar in character to those found in a commercial bank. The principal items of overhead expense prorated to the trust department are as follows:

1. Salaries.
2. Rent.
3. Taxes, Personal, Capital Stock, and State Privilege.
4. Depreciation on Furniture, Fixtures, etc.
5. Maintenance of Building.
6. Insurance on Building.
7. Light.
8. Heat and Ventilation.
9. Office Supplies.
10. Postage.
11. Telegraph.
12. Telephone.
13. Traveling Expenses.
14. Automobile Expenses.
15. Restaurant.
16. Legal Services.
17. Advertising, Publicity, and New Business.
18. Meetings.
19. Examinations.
20. Fidelity Bonds.
21. Workmen's Compensation Insurance.
22. Miscellaneous Expenses.

Income.—The lack of uniformity of state banking laws regarding the scope of operations of trust companies and local conditions, such as competition on the part of strictly commercial banks and the business of the community, precludes the possibility of making a specific statement as to the income of trust companies. In certain communities, trust departments are operated at a loss, and are merely "feeders" to the other banking services; while in other sections the banking function is merely nominal.

Generally speaking, however, the sources of income of a trust company are fees from the multiplicity of trust services, such as executor, administrator, guardian, receiver, trustee, transfer agent, etc., and interest on the company's own investments, and interest and discount received on loans made.

The question of standardization of charges for trust services has had much thought and attention on the part of banking authorities and special committees appointed by the state or national conventions of trust company officials. The Trust Company Section of the California Bankers Association was the first to adopt a standard schedule of charges. Whenever a trust company serves in capacities where its actions are subject to the review of the court, the compensation is fixed by statute or by decree of the court. By private agreement with the trustor, however, the trust company is able to set its own fee.

Special Auditing Features.—Most trust companies do a general banking business in addition to the business transacted by the trust department. Therefore, part of the audit would consist of a verification of the accounts kept by the banking department. As the audit of the latter department will not differ from the audit of a commercial bank (described in Chapter VII), it will not be treated in the present chapter.

As a preliminary step in the audit of the trust department, it is important that the auditor first acquaint himself with the conditions and requirements of each trust. This information will serve as a basis for the detailed audit of each individual trust, to ascertain whether or not the terms, conditions, and requirements of the various trusts were carried out and that they were honestly and efficiently administered.

Audit of Securities.—All securities should be verified as belonging to each trust, care being exercised to see that they are identified as the property of each particular trust to which they belong. Verification of the assets collected, as shown by the inventory, should also be made, to see that the correct amount was credited to the principal, or corpus, of each trust, and that the assets were actually on hand. Where securities are purchased for the investment of specific trust funds, the auditor should see that they are of a character approved by the state as legal for the investment of trust funds. The existence of these securities should be verified, together with their manner of acquisition, the latter by reason of the fact that it is often a condition of the

trust that someone besides the officers of the trust company must be consulted when securities are purchased.

Audit of Cash Receipts and Disbursements.—Verification should be made of the money representing the uninvested assets of the trust accounts, to see that it is deposited in other banking institutions, or is kept apart in a different account from the money belonging to the trust company. The collection of all income payable to beneficiaries should be verified, care being exercised to see that proper credits have been made to the principal or income accounts of the various trusts, whichever the case might be. All vouchers for disbursements should be examined, to see that no expenditures have been made out of the trust funds, except as authorized by the terms of the various trusts, and that no expenses or commissions have been charged against them that were not clearly authorized.

CHAPTER IX

STOCK BROKERS

Nature of Business.—The development of the corporate form of business organization and its stimulation through the promotion of large enterprises necessitated larger capital requirements to finance new undertakings than could be furnished by any individual or firm; therefore, upon the stock broker devolved the middleman's task of bringing about the union of idle capital and expanding business, which required additional capital to finance the extensive projects necessary for its proper development. As a result of the public sale of securities, speculation in them naturally followed. Thus was developed the business conducted by the present stock broker, who may be defined as one "engaged in buying and selling securities of incorporated companies and the certificates of indebtedness of governments." His transactions may be either for his own account, for the account of others, or with others jointly. The most important and most numerous transactions, however, are for the account of others, in which cases he is a mere agent of the principal, charging a stated commission for his services. He is often called upon to advance sums of money in order to complete the contracts he has entered into for others, thereby becoming a creditor to the persons for whose account funds are disbursed. When such advances are made, the stock broker receives the stocks or bonds purchased for his clients, or their equivalent, which he then holds as security for the advances, and, usually, either hypothecates or loans them, in order to replace the funds thus advanced.

Organization.—A brokerage firm is usually organized as a partnership. The ideal organization is a partnership composed of three members; one to represent the firm on the stock exchange, one to handle the financial affairs of the firm and supervise the books of account, and the third to act as general manager and maintain an agreeable point of contact between the firm and its clientele. The organization chart (Fig. 25) exhibits the various

officials and functional heads, under which are shown the functional divisions with their several operations and activities.

Legal Status.—A broker is an agent or intermediate person appointed for transacting special business on account of another. He is held to the usual and ordinary skill and diligence which is displayed by others in the line of his employment; and for failure to exercise such reasonable and usual discretion and diligence he is liable to his principal for any losses suffered by him as a result of such failure. He is required, as are all agents, to be loyal to his principal. The general rule that an agent should not buy from or sell to himself without the knowledge and consent of the principal, or act as agent for both the buyer and seller, and thus

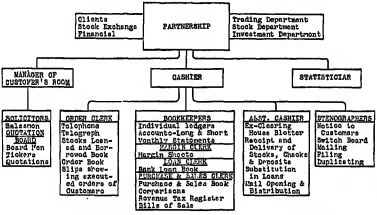


FIG. 25.—Organization chart—stock brokerage company.

receive double commission, without the knowledge and warrant of each, applies in the case of a stock broker. It is true that certain firms do suspend the general rules of agency, but this does not make the practice lawful or an established custom. A stock transaction, to be legal, and not a mere gambling transaction, must be evidenced by either actual or constructive delivery. An intent to deliver must be implied. Such an intent is considered to be present in the clearing house procedure. In all other transactions, actual delivery must take place.

The Stock Exchange Clearing House.—The principle of the stock exchange clearing house is the same as that of the bank clearing house. The situation is more complicated, however, because securities are cleared which have been sold at different

prices, and the payments offset the receipts. Shares of stock in multiples of 100 shares only are handled. A price is set by the clearing house in a round number of dollars, the price being as close to the day's closing price as possible, and settlements are made at this price. Each broker is notified to whom he must deliver and from whom he is to receive a net balance of securities. Since a broker many times buys and sells the same securities for clients, the shares he is to receive on account of purchases are offset against those he is to deliver on account of sales. A net amount is, therefore, arrived at, which he is to receive from, or deliver to, other brokers through the clearing house. The prices as set by the clearing house are established for the purpose of clearing the securities, and the differences between this price and the actual prices are settled through the clearing house by actual money deliveries.

Accounting Books and Records.—Brokerage accounts, in general, are uniform in the different brokerage houses, and the method of keeping them is essentially the same everywhere. The problems encountered by one house are practically the same as those met by all others, and their solutions are uniformly well established. The books most generally used are:

1. Purchases and sales book.
2. Blotters.
3. Customers ledger.
4. Private ledger.
5. Securities ledger.
6. General ledger.
7. Stocks borrowed and loaned book.
8. Money borrowed and loaned book.
9. Transfer stock register.
10. Vault lists.
11. Revenue tax register (required by law).
12. Margin book.

1. *Purchases and Sales Book.*—The main occupation of brokers is trading in securities for the benefit of third parties. The first book, therefore, which is necessary, is a book for recording the purchases and sales. This is either a loose-leaf or a bound book. While loose-leaf systems are prevalent, it appears that, as a book of first entry, the contents thereof could be best preserved in a bound volume, thus avoiding any possibility of loss or destruction. It is customary to have two purchases and sales records—

one for clearing house issues, and one for ex-clearing house listings. The purchases and sales records are often supported by order books, in which are recorded all orders received from customers for the purchase or sale of securities, specifying date of the order, time entered, quantity and name of securities to be purchased or sold, duration of order, price at which purchase or sale is to be made, date of execution, and price at which the transaction was actually consummated, or date of cancellation of

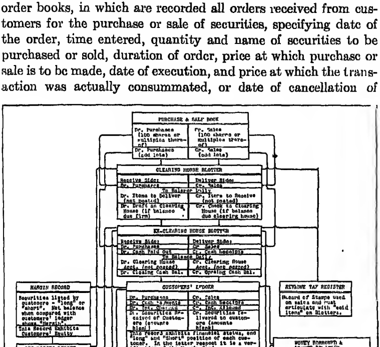


Fig. 26.—Chart of accounting books and records—stock brokerage company.

order in case cancellation is ordered prior to execution. From this record is taken the information which is sent to the customers as a result of their orders.

2. *Blotters.*—After the transactions have been recorded in the first book of entry, the same trades are "written up," or entered, either in the clearing or ex-clearing house blotter, depending altogether upon the classes of securities. The blotter is really the first book partaking of a financial character. From it are posted to the ledger all purchases and sales and all other entries

involving either cash, transfers from one account to another, or adjustments. This record is in use throughout the entire business day. It reveals the cash condition of the firm, and determines the extent of borrowing necessary to finance the transactions of the customers. It also measures the lending capacity of the firm, which, having too large a surplus of cash, may lend the same out on call.

3. *Customers Ledger.*—On the debit side of this record are shown all purchases, including commission, all interest charges computed monthly, and the "net longs" of the customer's account. "Long" securities represent either the receipt of securities as margin against other purchases, or margin against "short sales" and net purchases of the same security, during a period. On the credit side of the account will appear the sales of stocks and bonds, the delivery of securities to a customer or for the account of the customer against liquidated balances, and payments in cash on account of margin. "Net Short" securities of a similar class will be brought down after balancing the account. By the expression "short" is meant the selling of shares not sold against previous purchases or holdings, but sold with the expectation of realizing a profit through the decline in value of such shares. The subsequent purchase of shorts is known as "short covering" or "cover." An account may be long and short covering at the same time. As an illustration: a customer may be long of Union Pacific and short of Illinois Central. Such an account is known as a "hedged" one, in other words, a mixed account, containing items of similar tendency and items reflecting contradictions or negative tendencies. In mixed accounts, a great deal of difficulty is experienced in preparing the balance sheet, computing the monthly interest charges, and determining the sufficiency of margins. This difficulty may be overcome by setting up separate accounts for the customer, segregating the shorts and the longs.

It is important to remember that the customers ledger is not operated as a subsidiary to the general ledger, and that the latter does not contain the controlling accounts for customers and creditors. While the customers ledger is subsidiary, it is simply a part of the general ledger, separated for convenience. The columnarization of the blotters from which the entries are posted is such that no customers' or creditors' controlling accounts could be made possible. So, to all intents and pur-

poses, the customers ledger is nothing more than a device to make postings less difficult, by distributing the bookkeeping operations, and to make the general ledger less unwieldy. The balance totals must find expression on the trial balance sheet before the latter can be made possible.

4. *Private Ledger.*—It is often advisable to keep from the minor clerks, who have access to the books, the income of the concern, the capital accounts of the proprietors, and other vital business accounts which ordinarily appear in the general ledger. For this reason, the private ledger is adopted, and serves the same purpose as it does in any other type of business. The adoption of the private ledger necessitates keeping a controlling account in the general ledger.

5. *Securities Ledger.*—The securities or stock ledger, as the record is called, differs both in use and in form from the ordinary stock ledger which is employed in mercantile or corporate enterprises. This particular record is not designed for summary purposes, nor is it a financial book. It is used only for listing securities and for showing the places of deposit and disposition. The left side represents longs, or securities for which the stock broker is responsible to some other person, and sometimes it represents a segregation of his own securities into subclasses for his balance sheet; for example, he might wish to differentiate between "Exchange" and "Curb" stocks in his ledger, and the items belonging to each would be longs. The right side represents shorts, or securities for which other persons are responsible to the stock broker, and also the "sites" of the securities, that is, whether in loans or in the vault, etc. This is the most anomalous factor in brokerage accounting. The left side (usually debit) is used to show liabilities of the broker, and *vice versa.* This arises from the fact that longs and shorts, as respecting each customer, are kept in the customer's account; and, as most longs arise from transactions whereby the customer becomes a debtor, it has become customary to consider the security phase on that side; on the contrary, shorts arise principally in transactions whereby the customer becomes a creditor, and the matter is reversed with respect to what is virtually a claim of the broker against said customer for the security involved.

At any given time it should be possible to "balance the securities" by adding the number of shares of stocks or bonds represented on the one side of the sheet, which amount should agree

with the footings on the other side of the record. As an illustration: if a customer is long on 100 shares of U. S. Steel, it would be shown on the debit side of the stock ledger. If the stock has not been paid for and delivered to the customer (in which case the record would be canceled by such delivery), the right-hand section of the U. S. Steel sheet should reveal the present place of deposit—either that the stock had been loaned to other brokers, or is serving as collateral for some bank loans; or else it might appear as being in the transfer office of the corporation awaiting reregistration, or in the vault or box of the broker. In any case, except the delivery to the customer, the shares of U. S. Steel should balance on either side of the record. The stock ledger is not, therefore, a permanent record, but at best is only a temporary memorandum which changes from day to day with the transactions of the customers or with the change in place of securities.

6. *General Ledger.*—The general ledger will contain the usual nominal accounts, asset and liability accounts, and the proprietors' interest. The customers and private ledger accounts are excluded from the general ledger if they are incorporated in separate ledgers. Provided the customers ledger is handled separately from the general ledger, it will be more convenient to use a bound book; otherwise it is more practicable to use a loose-leaf device, because the accounts of the customers, by reason of their voluminous transactions, must be carried forward so often that, for the benefit of keeping the respective accounts intact, loose-leaf sheets are both convenient and practical. Secondly, the clientele of the concern might change, making the insertion or the withdrawal of sheets constantly necessary.

7. *Stocks Borrowed and Loaned Book.*—One form of borrowing money is by means of loaning stocks to other brokers. This is the prevailing method, and the most effective one, for the reason that, having purchased stock, the receipt and payment therefor must be made during the business hours of the following day. This necessitates the financing of stock transactions, and, unless funds are immediately available, borrowing from the bank on collateral or of stock in the "Street" becomes necessary. By loaning shares in the Street, it becomes unnecessary to allow the usual 20 per cent margin required by the bank in collateral loans. The loaning rates of interest on active issues of stock are usually smaller than the rates asked by the banks on "call" money.

Frequently stocks will loan at a premium, as in the case of an "oversold market." The broker seeking to borrow a specified stock for the purpose of making delivery against a possible short sale of his customer does not consider the rates of interest as keenly as does the banker, nor the amount of money involved in the transaction. On the other hand, he considers the necessity of borrowing the stock. The stocks borrowed and loaned book is the medium for recording transactions of this nature.

8. *Money Borrowed and Loaned Book.*—The use of this book is self-explanatory. Because of the character of the business transacted by brokers, it is necessary to borrow large sums of money, mainly for the purpose of carrying the customers' accounts. These loans are usually obtained from banks, and are always secured by collateral, usually consisting of the stocks and bonds purchased for the accounts of customers.

9. *Transfer Stock Register.*—It is often necessary to forward stock to the issuing company for transfer to a new owner, and a record of such stock is contained in the transfer stock register.

10. *Vault Lists.*—In many of the brokerage offices a record is kept of the securities in the vault, or box, which is a subsidiary record to the securities or stock ledger.

11. *Revenue Tax Register.*—In New York, a state tax of 2 cents a share is charged the seller. Stamps representing the payment of this tax must be attached to every transferred stock certificate. A revenue tax register is also required in the state of New York, in which all sales are recorded, indicating date, kind of stock, quantity, to whom sold, and the amount of the stamp tax on each sale.

12. *Margin Book.*—The customers' stock margin book is probably the most important record to the broker for close analysis and study. The means employed for handling margins may properly be either a loose-leaf device or a card system. The information furnished by this record exhibits the standing of the customer who has either a long, short, or a hedged interest in the market. Most of the trading is done on margins, a method allowing a trader to carry a large line of securities by depositing only part of the purchase cost. The usual marginal requirements are 10 points on the number of shares held, and, frequently, a percentage of the cost value will be required; but this depends altogether upon the policy of the broker or the nature of the stocks carried, whether highly

speculative or otherwise. All accounts, except those of wealthy clients, must be watched carefully, in order to determine the "calling point" for additional margin. Thus the system used to record margins, whether by loose-leaf or card records, should be so arranged that the name of the account; the number of shares long or short; the description of such shares; the net price, including commission; the market price of such stocks; any losses or gains thereon, by comparison of market price and cost price; the margin deposit and the margin remaining to carry such commitments in either "points" or "percentages" will be shown. The desired information is obtained from the margin sheet, or card record, which should be so arranged as to present the facts quickly, systematically, and logically.

Typical Journal Entries.—In the illustrative journal entries given below all adjustments for interest and all the expense items have been ignored for sake of simplicity.

John Jones starts in the brokerage business with $200,000 in cash, $250,000 (market value) of bonds, and an Exchange seat valued at $50,000.

Cash	$500 000	
Capital		$500 000
Recorded in "deliver" ex-clearing house blotter.		
Exchange Seat	50 000	
Bond Account	250 000	
Cash		300 000
Recorded in "receive" ex-clearing house blotter. Bonds recorded in securities ledger and vault list.		

X, a client, furnished 100 shares of U. S. Steel. Stock was sold at 101 and net proceeds given to X.

Cash	$10 100	
Customers, Long		$10 077
Commissions		15
State Tax		4
Federal Tax		4
Recorded in sales-purchases and sales book, and "deliver" clearing house blotter. Stock recorded in stock transfer book and securities ledger. Customer credited in customers ledger. Stamps recorded in revenue tax register.		
Customers, Long	10 077	
Cash		10 077
Recorded in "receive" clearing house blotter. Customer debited in customers ledger.		

Purchased for, and delivered to, Y 100 shares of Union Pacific at 125.

Customers, Long	$12 515	
Cash		$12 500
Commissions		15
Recorded in purchase-purchases and sales book and "receive" clearing house blotter. Entry in securities ledger and customers ledger.		
Cash	12 515	
Customers, Long		12 515
Recorded in "deliver" clearing house blotter. Entry in customers ledger.		

Purchased on a 10 per cent margin for Z, 500 shares of Illinois Central at 103, and 500 shares of Nash Motors at 108. The Illinois Central stock with $3,000 of the firm's own bonds was pledged at the bank for $51,500. The Nash Motors stock was loaned to another broker for market value.

Customers, Long	$105 650	
Cash		$105 500
Commissions		150
Recorded in purchase-purchases and sales book and "receive" clearing house blotter. Entry in securities ledger and customers ledger.		
Cash	105 500	
Bank Loans		51 500
Loaned Stock		54 000
Recorded in "deliver" ex-clearing house blotter. Stocks and bonds pledged entered in money borrowed and loaned register. Stock loaned entered in stock borrowed and loaned register.		
Cash	10 550	
Customers, Long		10 550
Recorded in "deliver" ex-clearing house blotter. Entry in margin book and customers ledger.		

Sold for Z, 200 shares of his Illinois Central stock at 104, and 300 shares of his Nash Motors stock at 109. Paid off Z, except for $5,300 margin.

Cash	$53 500	
Customers, Long		$53 385
Commissions		75
State Tax		20
Federal Tax		20
Recorded in sales-purchases and sales book, and "deliver" clearing house blotter. Stock recorded in stock transfer book and securities ledger. Customer credited in customers ledger. Stamps entered in revenue tax register.		
Bank Loans	20 600	
Loaned Stock	32 400	
Cash		53 000
Recorded in "receive" ex-clearing house blotter. Return of pledged securities entered in money borrowed and loaned register. Return of loaned stock entered in stocks borrowed and loaned register.		
Customers, Long	5 485	
Cash		5 485
Recorded in "receive" ex-clearing house blotter, margin book, and customers ledger.		

Sold short for R, on a 10 per cent margin, 600 shares of Kelsey Wheel at 100, and 500 shares of MacKay Company at 108.

Cash	$114 000	
Customers, Short		$113 747
Commissions		165
State Tax		44
Federal Tax		44
Recorded in sales-purchases and sales book, and "deliver" clearing house blotter. Stock recorded in stock transfer book and securities ledger. Entry in customers ledger and revenue tax register.		
Borrowed Stock	114 000	
Cash		114 000
Recorded in "receive" clearing house blotter, securities ledger, and stocks borrowed and loaned register.		
Cash	11 400	
Customers, Short		11 400
Recorded in "receive" clearing house blotter, margin book, and customers ledger.		

Purchased for R, 400 shares of Kelsey Wheel, at 98, and 200 shares of MacKay Company at 109. Paid off R, except for $5,230 margin.

Customers, Short	$61 090	
Cash		$61 000
Commissions		90
Recorded in purchase-purchases and sales book, and "receive" clearing house blotter. Entry in securities ledger and customers ledger.		
Cash	61 600	
Borrowed Stock		61 600
Recorded in "deliver" clearing house blotter, securities ledger, and stocks borrowed and loaned register.		
Customers, Short	6 427	
Cash		6 427
Recorded in "receive" ex-clearing house blotter, margin book, and customers ledger.		

By posting the foregoing journal entries, the following trial balance is obtained:

Cash	$211 176	Capital	$500 000
Bond Account	250 000	Loaned Stock	21 600
Customers, Long	47 200	Bank Loans	30 900
Exchange Seat	50 000	Commissions	510
Borrowed Stock	52 400	Customers, Short	57 630
		State Tax	68
		Federal Tax	68
	$610 776		$610 776

The Customers, Long account may be analyzed as follows:

Client X—no balance.		
Client Y—no balance.		
Client Z:		
Market Price of Stock Sold		$53 500
Market Price of Stock Bought—Total	$105 500	
Market Price of Stock Bought—Retained	52 500	53 000
Gross Gain		$ 500
Commissions and Taxes		265
Net Gain		$ 235
Margin at Start	$ 10 550	
Margin at End	5 300	5 250
Money Returned		$ 5 485
Original Market Price of Stock Retained		$52 500
Margin		5 300
Balance Due to Broker		$47 200

The Customers, Short account may be analyzed as follows: Client R:

Market Price of Stock Sold—Covered		$61 600
Market Price of Stock Bought as Cover		61 000
Gross Gain		$ 600
Commissions and Taxes		343
Net Gain		$ 257
Margin at Start	$ 11 400	
Margin at End	5 230	6 170
Money Returned		$ 6 427
Original Market Price of Stock Sold—Uncovered		$52 400
Margin		5 230
Balance Due by Broker		$57 630

Assets.—The assets shown by a financial statement of a stock brokerage firm are, for the most part, self-explanatory. The item, Due from Brokers for Stocks and Bonds Borrowed, represents the amount of money delivered to other brokers for stocks and bonds borrowed from them. When the securities are returned to other brokers they will return the amount of cash shown by the books to be due from them. The amount, Due from Brokers for Stocks and Bonds Not Delivered, represents securities sold to other brokers which have not as yet been delivered to them. At the time of sale, the brokers are charged with the value of the securities sold them, and the customers for whose accounts the securities were sold are credited. Due from Customers, which is always the largest asset of any brokerage house, represents the difference between the purchase price of securities bought long for their accounts and the amount deposited as margins. Exchange membership is self-explanatory.

Liabilities.—Among the liabilities, Money Borrowed represents the amount of money borrowed from various banks, mainly for the purpose of carrying the customers' accounts. These loans are always secured by collateral, usually consisting of the stocks and bonds purchased for the accounts of customers. Due to Brokers for Stocks and Bonds Loaned represents the amount of money received from other brokers for stocks and bonds loaned to them. When these securities are returned, the amount of money which they put up when they borrowed the stocks and bonds will be returned to them. Due Brokers for Stocks and

Bonds Not Delivered represents securities purchased from other brokers which have not as yet been received from them. The brokers have been credited and the customers' accounts for whom the securities were purchased have been charged. Due Customers' Account Short Sales represents the amount received from the sale of stocks and bonds for which the customers have not as yet made actual delivery, such delivery, in the meantime, having been made by the brokerage firm to the purchaser of said securities. As soon as the customer covers, by instructing the firm to purchase for his account the securities "short," the amount due him on account of short sales will be reduced by the prices paid.

Proprietorship Accounts.—The form of organization generally found in a brokerage firm is the partnership, and the usual capital accounts for each partner are maintained, to take care of his proportional investments and withdrawals.

Balance Sheet.—Brokerage accounts, in general, are uniform in the different brokerage houses, and the method of keeping them is essentially the same everywhere. For this reason the form of balance sheet is practically the same for all brokerage firms. A typical balance sheet of a stock and bond brokerage firm is represented by the following:

NAME OF FIRM

Financial Statement

As of............ ....19....

Assets		Liabilities and Capital	
Current Assets:		Current Liabilities:	
Cash on Hand and in Banks	$......	Money Borrowed	$......
Accounts Receivable:		Due Customers for Cash Balances	......
Due from Customers	......	Due Customers, Account of Short Sales	......
Due from Brokers:		Due Brokers:	
Stocks and Bonds Borrowed	......	Stocks and Bonds Loaned	......
Stocks and Bonds Undelivered	......	Stocks and Bonds Undelivered	.....
Commissions Due from Brokers	.....	Accounts Payable	......
Fixed Assets:		Accrued Commission	......
Stock Exchange Seat	......	Net Worth:	
Investments	.. ...	(Partners by Name)	......
Furniture and Fixtures	......		
Total	$	Total	$ ......

Expense.—The expenses of a brokerage business, in addition to those incurred in other lines of business, such as rent, salaries, stationery, telephone and telegraph, etc., also include expenses

incidental to the conduct of a stock brokerage business, such as Stock Exchange dues, printing (of market letters, quotation sheets, financial papers), commission bills, etc.

Income.—The income of a brokerage house is derived primarily from commissions, interest, and profit on sale of securities owned by the firm. In closing the books at the end of a fiscal period, it is necessary to calculate the interest charged against customers up to the time of closing, in order that the complete income from this source may be known. Interest is not credited to the account of a customer on a short sale until he delivers the securities; but the margin deposited by the customer is usually treated as an interest-bearing credit. Sometimes the broker charges his customer a bonus for the use of the shares of stock which the broker owns himself, or which he borrows for the customer's account. The customer, of course, is not entitled to receive interest on his short sales.

Special Auditing Features.—In auditing the accounts of a stock broker, an auditor should first count the securities on hand; next, balance the securities, in order that, when the exact amount on hand, in transit, pledged, loaned, and borrowed is ascertained, a check may be had of the customers accounts, whether long or short. This done, an abstract of the customers accounts should be obtained, in order that requests for confirmation of accounts may be sent out as soon as possible.

The audit is usually started on the last day of the month. Whatever the date, the best time to start one is immediately after the market closes. The work of balancing the securities should be started at the very outset of the audit and should be continued without loss of time until all the securities have been accounted for. This is essential, for if control is lost over them before they are balanced, the entire audit may prove to be practically valueless. This is particularly the case if there is a rapidly changing market, for substitutions and transfers of securities are then made so often that great difficulty may be experienced in reestablishing control of them, and such an amount of time would be consumed that other important features of the audit, such as verification of the sufficiency of margins in customers accounts, would be delayed for a considerable period.

A physical examination should be made of all securities on hand, and confirmation of others should be started as soon as possible. The greater portion of the securities will undoubtedly

be at the banks, where they are used as collateral on loans. Some will be in the hands of other brokers, being used as securities on loans and securities purchased but not delivered, while others may be at the transfer offices. Likewise, the firm may be holding securities which it has borrowed from or sold to other brokers, but not delivered.

The cash should be verified by counting the cash on hand and verifying the bank reconciliations. A confirmation of the balances should be obtained by the auditor by correspondence with the banks.

The ledger accounts should be compared with the trial balance, and the lists of customers' statements should be compared with the latter, to see that the balances are in agreement.

An important feature of an audit, and one which brokers are often desirous of having verified, is the sufficiency of the margins in customers' accounts. Most brokerage houses require a minimum margin of 10 points. Particular attention should be given to accounts with debit balances having no securities; also, accounts with debit and security balances where no margin exists.

Where securities are owned by the firm, it is good practice to inventory them on the most conservative basis, *i.e.*, cost, or cost or market (whichever is lower), the exception possibly being where there is an abnormally low market for securities and it would not be fair to write off a large loss during the period, especially if the securities are permanent investments.

Other features of an audit should be the verification of income and expense accounts. The income is derived from securities owned by the firm, commissions charged, and interest. Commissions are usually verified from the blotters, and the interest from the press copy of the customers' statements. Commissions and interest, as a rule, are only tested, as it would entail a considerable amount of work to verify them completely; and, generally, a good internal check is maintained by the office force. A test is usually made of expenses incurred, care being taken to see that such expense items are supported by properly approved vouchers. In cases where vouchers are missing, the items should be discussed with someone in authority.

CHAPTER X

BUILDING AND LOAN ASSOCIATIONS

Nature of Business.—A building and loan association is a mutual organization formed to promote systematic thrift and savings, and to employ these savings in the building, buying, and improving of homes, and in the payment of mortgages on homes by weekly or monthly payments. The building and loan association plan was started in Philadelphia in 1831, and has a record of success covering almost a century. Building and loan associations are organized under the various state laws and are subject to supervision in the same manner, and usually by the same state departments, as the banks. Each and every association under the liberal state laws has its own plan of operation. They may vary as to the time or amount of weekly or monthly payments, rates of interest or dividend paid and rates of interest charged borrowers, classes of stock issued, and other important features designed to suit any particular community. In this respect, they are similar to life insurance companies, each of which may issue special contracts and policies; whereas, on the other hand, banks usually are organized and operated along a more general plan, or on a more standardized basis.

The purpose of the building and loan association is not for producing profits for specific persons or industries. Its entire object and purpose is to promote community development, by furnishing the necessary financial assistance through organized thrift to make home ownership possible to those who may have such desire and ambition.

Speaking generally, it collects funds through the sale of shares to people who thereby become shareholders of the association and participate in its management, through the annual election of directors and officials. Its funds are loaned to members on the security of shares pledged and on first mortgages on improved real estate, usually homes. These mortgages are usually for a long term, and are repaid in weekly or monthly instalments, as a rule not greater than the rental value of the property.

The term "building and loan association" covers a general class of institutions of similar character, including cooperative banks, homestead associations, and savings and loan associations and societies, different states and localities tending to adopt certain general names.

Types of Associations.—Building and loan associations may be organized and conducted under various plans. The four principal types are those organized upon the terminating plan, the serial plan, the permanent plan, and the Dayton or Ohio plan.

Under the terminating plan, all the stock is issued at the time of the organization of the association, and, consequently, all matures at the same time. With the maturity of the stock, the association goes out of existence. Under the serial plan, instead of having one issue of stock, there are several issues put out at various dates. The association, instead of terminating with the maturity of the first series, continues in existence, usually for an indefinite period, for new series are constantly being issued, which must run their natural course to maturity. Under this plan it is customary to put out a series at some stated period, say once every year. Under the permanent plan there are no stated periods for the issue of any stock. Instead, a member can take out shares at any time which is convenient. Under such a scheme each member's stock practically constitutes a separate series. The distinguishing characteristic of the Dayton or Ohio plan is that members are not required to pay a stated amount of dues on a given date, as in all the preceding plans. Instead, the members make payments in such amounts and at such intervals as are most convenient.

Organization.—The principal officers of a building and loan association are a president, a secretary, and a treasurer, who, together with a board of directors, conduct the business of the association. The board of directors usually passes on all loans made by the association, while the secretary and the treasurer, often the same individual, conduct all its other affairs. For these reasons there is no internal check on the business of an association, such as is found in all banking institutions. The same person who receives the dues from the members also has access to the books of account.

There is usually an Auditing Committee, composed of three members of the association, who are appointed by the board of directors, and an Executive Committee, composed of the president,

the treasurer, and the secretary, which last named committee has the power between board meetings to approve or reject applications for loans, and to transact all business referred to it by the board of directors. The organization chart (Fig. 27) presents the various officials, with their operative functions and activities.

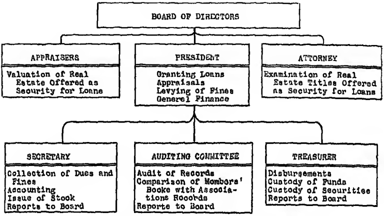


FIG. 27.—Organization chart—building and loan association.

Legal Status.—The laws relating to building and loan associations are similar in many respects in the various states, and are sufficiently illustrated by those in effect in Ohio, which may be summarized as follows:

1. Building and loan associations are organized and receive their charter in accordance with the state's statutes.

2. The powers of building and loan associations are:

- To have perpetual succession.
- To have a corporate seal.
- To make contracts.
- To sue and be sued.
- To make rules for their own government.
- To receive money on deposit.
- To issue stock to members.
- To assess and collect dues, fines, interest, and premiums on loans.
- To cancel shares and parts of shares of stock.
- To permit members to withdraw all or part of their stock deposits.
- To issue stock to minors and receive deposits thereon.

To lease, acquire, hold, encumber, convey, and rent such real estate and personal property as is necessary for the transaction of its business.

To borrow money.

To make loans to members.

To accumulate from earnings a reserve fund for the payment of contingent losses, and an undivided profits fund, both of which may be loaned or invested.

To increase or decrease authorized capital.

3. The shares and loans advanced to members shall be exempt from taxation.

4. The associations are subject to inspection by state inspectors.

5. They must make annual reports to the state, showing in detail the affairs and business of the associations for the preceding year.

6. Penalties are imposed upon the officers and directors for any illegal or unlawful acts.

Accounting Books and Records.—The principal books used by building and loan associations are a cash book, loan register, and a roll book. The form and operation of the accounting system vary somewhat, depending on the plan in force. These differences are, however, unimportant. The cash book and the loan register are similar to those found in other enterprises of like character. The roll book, which is in the nature of a depositors' accounts payable ledger, contains the names of the members, together with their addresses and book numbers, the number of the series in which they hold stock, the number of shares held, and the amount due by each for dues, interest, fines, etc. The amounts due by the members each month are entered in the debit column, and as the members make payments the amounts are entered in the credit column, also in the receipt register or contribution blotter. Later on, the secretary or treasurer summarizes these receipts, and then enters the totals in the general cash book. It is evident that the total of the roll book shows the money that has been received for any given monthly meeting, and, for convenience, this total is entered in the general cash book, under the head of "June Meeting," "July Meeting," etc.

There are other books. For instance, an appraisement book for recording reports of the Appraisement Committees in connection with applications for loans; and an application book

for loans, which has columns for dates of applications for loans, name, amount of money desired, how much granted, and spaces for description of property, remarks, etc. There are, also, a

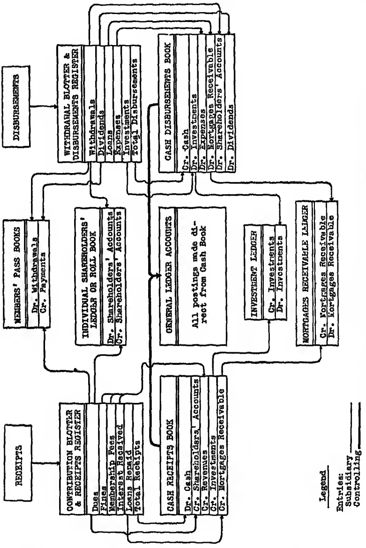


FIG. 28.—Chart of accounting books and records—building and loan association.

stock subscription book and a stock transfer book. Sometimes a separate book, known as a deposit fee book, is used for keeping a record of fees advanced by members applying for loans.

The chart (Fig. 28) presents in diagrammatic form the accounting books and records used in building and loan associations. These are arranged and connected so as to show the functions of each, the course of entries from one to another, and the general relation each bears to the others and to the system as a whole.

Assets.—The principal assets of a building and loan association are cash, mortgage loans, stock loans, arrearages in dues, fines, and interest, and possibly the building occupied by the association. By far the largest asset items are the mortgage and stock loans. Loans are made to members only, on real estate security or members' stock. Some associations make loans on collateral security, but not on promissory notes. A member who borrows on stock only is enabled to borrow no more than the surrender value of his shares, which surrender value is measured by the amount paid in plus accrued profits, or else at some fixed rate of interest for surrenders. In other words, he cannot borrow on his stock to the extent of its maturity value.

Liabilities.—As a rule, the only liabilities found in connection with a building and loan association are current liabilities, such as borrowed money, interest on borrowed money, dues paid in advance, accrued wages, and expenses.

Proprietorship Accounts.—The stock of a building and loan association is issued according to one of several plans. The most commonly used method is to issue various series of stocks starting at different dates. The face value of a share is usually \$100 or \$200. As a matter of fact, the actual value of a share never reaches this amount until it is paid up and called in by the association for cancellation. The subscriber to the stock of a building association, unlike one in ordinary corporations, pays for his investment in instalments. These generally take the form of dues, which are usually \$1 per month per share. The total contributions of the shareholder from dues are augmented by his proportionate share of the profits of the association, which is distributed according to one of several methods. When the total of dues and profits from stockholdings equals the face value of the stock, it is said to mature. The association then calls in the stock and cancels it, or, in some cases, issues fully paid stock, which earns a certain income for its owner. If the member has borrowed from the association, the maturing of his stock marks the end of his indebtedness. It follows, therefore, that the value of a share of building and loan association stock

at any time is not the matured value of \$100 or \$200, but a constantly varying amount. In fact, the stock has two values: first, the holding or "book value," which is the measure of the accumulated dues that have been paid in, plus the member's proportionate share of the association's profits; and, second, a "withdrawal value," which measures the amount the association agrees to pay to a member who withdraws from the association before his stock matures. The withdrawal value is almost always less than the book value.

Distribution of Profits.—Perhaps the most difficult thing to understand about building and loan associations is the distribution of profits. In prorating profits, each series is regarded as an entity, and is treated very much as a partner when the articles of copartnership state that the profits shall be prorated on the basis of average investment. The total dues paid in constitute the investment, and the "equated time" corresponds roughly to the average time the investment is left in the business.

Equated Time.—As the dues are paid in uniform amounts at equal intervals, the "dollar-month" to the credit of a share whose dues of \$1 a month have been paid for six months would be:

Dollars	Month	"Dollar-Months"
\$1	6	6
1	5	5
1	4	4
1	3	3
1	2	2
1	1	1
\$6		21

Twenty-one dollar-months divided by \$6 equals 3½, this being the number of months, or the average time (called "equated time") each dollar of dues has been in the hands of the association. The above calculation can be shortened by taking advantage of the fact that the dollar-months constitute an arithmetic series, and can, therefore, be summed as follows:

A = first term	$A = 6$
L = last term	$L = 1$
N = number of terms	$N = 6$
S = sum	$S = ?$
$S = \frac{N}{2}(A + L)$	$21 = \frac{6}{2}(6 + 1)$

However, since the equated time is the quotient of the sum of the dollar-months divided by the number of periods, it may be symbolized thus:

$$\frac{\frac{N}{2}(A + L)}{N} \text{ or } \frac{A + L}{2}.$$

As A is always equal to N, and L is always unity, the formula for equated time can be simplified to:

$$\frac{N + 1}{2}.$$

With this formula, the mathematics behind the following table is self-evident:

Number of times dues were paid	6	12	18	24	30	36
Equated time for each share	3½	6½	9½	12½	15½	18½

Partnership Plan.—Under the partnership plan the profits are distributed on the assumption that all profits constitute a common pool for all series alike. This assumption may work to the serious disadvantage of particular series of shares if the profitableness of the enterprise varies from year to year, *viz.*, the old series gains at the expense of the new series if the rate of profit increases, and loses if the rate declines.

The proration of profits under the partnership plan divides the total undrawn profits between the series, on the basis of their "equated dollar-months." The equated dollar-months of each series is found by multiplying the "amount of dues paid during all periods" by the "equated time," and then multiplying this product by the "number of shares in series."

Dexter Plan.—The Dexter plan avoids the objection to the partnership plan by placing each year on a separate basis. This is done by treating past profits distributed to each series as definitely belonging to that series, and by distributing only the current earnings at the end of each period.

The proration of profits under the Dexter plan divides the current period's earnings between the series on the basis of their equated dollar-months. The equated dollar-months of each series is found by adding the product of the initial value of each share multiplied by the number of due payments during the current period, multiplied by the number of shares in the series, to the product of the "amount of dues paid during the current period," multiplied by the "equated time," multiplied by the "number of shares in series."

Illustrative Problem.—A building and loan association, whose monthly dues were $1, issued 1,000 and 2,000 shares respectively, of its stock during its first and second years of operation. Assuming that the net profits were $390 and $1,890, respectively, during the first and second years, find the book value of the stock at the end of the second year, by both the partnership and the Dexter plans.

PARTNERSHIP PLAN

Series	Dues Paid		Equated Time		Dollar-months per Share		Number of Shares		Dollar-months per Series
1	$24	×	12½	=	$300	×	1 000	=	$300 000
2	12	×	6½	=	78	×	2 000	=	156 000
									$456 000

Series	Basic Fraction		Distributable Profits		Share of Series	Profit per Share	Dues Paid	Value per Share
1	$\frac{300}{456}$	×	$2 280	=	$1 500	$1.50	$24.00	$25.50
2	$\frac{156}{456}$	×	2 280	=	780	0.39	12.00	12.39

DEXTER PLAN

Series	Principal		Equated Time		Dollar-months per Share		Number of Shares		Dollar-months per Series	Dollar-months per Series
1	$12.39	×	12	=	$148.68	×	1 000	=	$148 680.00	
	12.00	×	6½	=	78.00	×	1 000	=	78 000.00	$226 680.00
2	12.00	×	6½	=	78.00	×	2 000	=	$156 000.00	156 000.00
										$382 680.00

Series	Basic Fraction		Distributable Profits		Share of Series	Profit per Share	Principal	Value per Share
1	$\frac{226\,680}{382\,680}$	×	$1 890	=	$1 119.54	$1.12	$24.39	$25.51
2	$\frac{156\,000}{382\,680}$	×	1 890	=	770.46	0.38	12.00	12.38

Balance Sheet.—The balance sheet given below is required by law to be filed semi-annually by the associations in the District of Columbia with the Comptroller of the Currency, together with a statement of receipts and disbursements, a list of loans carried over six months delinquent in interest, a detailed schedule of salaries paid officers, a list of loans made to officers or directors, a schedule showing the shares in force, dues paid in, and profits

at date of statement, and an itemized list of real estate owned by the association.

NAME OF ASSOCIATION

Balance Sheet

As of.... ...... .19....

Assets		Liabilities and Capital	
1. Loans on Real Estate	\$.... .	1. Instalment Dues Paid in on Stock	\$.. ..
2. Loans on Stock Pledged	......	2. Instalment Dues Paid in Advance	. ...
3. Interest, \$ .. .; Fines, \$.... . Due and Unpaid	......	3. Instalment Dues Due and Unpaid	. ...
4. Instalment on Stock Due and Unpaid	... ..	4. Interest Due on Instalment Stock	......
5. Real Estate: Office Building \$.... .. Other	. ....	5. Advance Stock	......
6. Real Estate Sold on Contracts	......	6. Interest Due on Advanced Stock	.....
7. Bills Receivable	.....	7. Advance Payments	. ....
8. Accounts Receivable	......	8. Interest Due on Advanced Payments	......
9. Insurance Premiums Advanced	......	9. Special Deposits	......
10. Taxes Advanced	......	10. Interest Due on Special Deposits	......
11. Furniture	......	11. Special Payments	. ...
12. Cash in Hands of Treasurer	......	12. Interest Due on Special Payments	... .
13. Cash in Hands of Secretary	......	13. Interest Paid in Advance	. . .
		14. Bills Payable	. ...
		15. Interest Due on Bills Payable	.. ...
		16. Incomplete Loans	. ...
		17. Matured Stock	. ....
		18. Due Treasurer	.. ...
		19. Profit (Divided)	.....
		20. Profit (Undivided)	......
		21. Surplus	......
Total Assets	\$......	Total Liabilities and Capital	\$ ....

Expense.—The expenses of a building and loan association are very small, and consist principally of salaries and wages, rent, postage, stationery, etc.

Income.—The income of an association consists of interest received on loans to members, premiums paid by borrowers for loans obtained, fines imposed upon members, admission fees of new members, and transfer fees for the transfer of stock from one member to another.

Profit and Loss Statement.—The profit and loss statement of a building and loan association is merely a statement of income and expense, and is usually shown in the following form:

NAME OF COMPANY

Profit and Loss Statement

For Period Ended.......19....

INCOME		
Interest Received	$......	
Entrance Fees	......	
Fines	......	
Stock Transfer Fees	......	$......
EXPENSES		
Salaries and Wages of Employees	$......	
Stationery and Postage	......	
Loan Expenses	......	
Interest Paid	.. ...	
Miscellaneous Expenses	......	......
Net Profit for Period		$......

Special Auditing Features.—In auditing a building and loan association several distinctive features must be kept in mind. It is necessary to call in all the pass books, in order to ascertain whether or not the principal paid in by the members, as shown by their individual pass books, has been recorded by the treasurer. The auditor can also determine the amount of the arrearages of the stockholders of the different series, and compare the same with the records of the association. The next step would be to ascertain whether or not the treasurer is in physical possession of the shares which are pledged as securities for loans; further, it is essential to read the minutes of the meetings, with a view of ascertaining the amount of the fines imposed upon the members, and, if occasion requires, the amount of premiums paid by the borrowers for loans obtained by them. Of course, the bank balances shown by the account of the treasurer must be reconciled.

Since the capital paid in is being constantly loaned out to the stockholders, the auditor should verify the same by making a thorough inspection of all mortgages or other securities held as collateral for loans.

The total receipts from dues for the year can be ascertained by noting the outstanding shares in each series and the allowances for withdrawals. Interest on loans is an earning, and ought to be carefully verified by checking up the interest rate as given by the by-laws. The premium earnings can be found from the

minutes of monthly meetings. The number of shares issued during the year would indicate the earnings that should have been received from entrance fees of new members.

Expenses are very small, and can be verified by the vouchers and checks issued in payment thereof.

An equitable distribution of profits should be made on each series. The by-laws generally provide for the method of distributing the profits, and the auditor should see that compliance therewith has been made.

CHAPTER XI

FIRE INSURANCE COMPANIES

Nature of Business.—The business of assuming the risks of financial losses by fire, and providing indemnities for such losses, which may occur at unknown or unexpected times, is called fire insurance. It may be defined as a conditional contract, whereby the insurer (the insurance company), in consideration for a certain stipulated payment, termed a "premium," promises to reimburse the insured (the policyholder), in the event of a fire, an amount equivalent to the actual loss sustained by the insured, in no case exceeding the amount stipulated in the contract. In other words, fire insurance companies sell only one commodity, namely, protection against fire, receiving in return compensation in the form of premiums.

The Policy.—A fire insurance policy is a conditional promise to pay the amount of, or otherwise to make good, the whole or a portion of any fire loss, not exceeding the face amount of the policy, which the insured may suffer on certain named property during a stipulated term. It is what is called an unilateral (one-sided) contract, in that only one of the parties signs it, the other accepting it subject to its conditions. The indemnity it affords is not general and unrestricted, but carefully specified, limited, and conditioned. Its elements may be said to be the parties, the hazards, the conditions, the property, the amount, the term, and the premium. A policy contract so made may be made void in one of three ways: by expiration, by cancellation, or by forfeiture.

In the early days, when all companies used their own policy forms, there was great diversity in the forms of policies and considerable uncertainty, in consequence, as to their provisions. This condition necessitated the adoption of a standard form of policy, the most prominent of which is the New York Standard policy. As other states adopted standard policies, the New York form was the one most frequently used, if not in its completeness, at least almost so. This policy contains, among other

things, very clear and precise statements as to the limitation of the liability of the insurer, as to the acts of the insured which will cause the policy to become void, and as to the necessary procedure by the insured to prove a claim for indemnity in case of loss. Since the adoption of the Standard New York policy, nearly all of its conditions have been passed upon by the higher courts, making it a very desirable contract to be used. In order to give a certain degree of flexibility to the standard policy, a series of riders has been prepared, which the companies are, in many states, authorized to attach to the policy, and which thus become part of the contract.

There are many forms of policies made necessary on account of the inclusion of certain clauses in the endeavor to fit the policy to whichever or whatever class of property happens to be the subject of insurance. Prominent among them is a policy known as "blanket" insurance, which covers, under one item, property which is usually covered under two or more separate items. This form of policy is used mostly by large manufacturing or mercantile establishments, where the assets are constantly fluctuating as to quantities, making it impossible to ascertain the value of the items insured in any one building at the time of the fire, and the necessary amount of insurance which should be carried. This difficulty is met by writing a "blanket form" of policy covering the contents of all the buildings insured, with either a "coinsurance" or an "average" clause, or both.

The "Coinsurance Clause."—The present form of the coinsurance clause, in the state of New York, reads as follows:

> If at the time of the fire the whole amount of insurance on the property covered by this policy shall be less than the actual cash value thereof, this company shall, in case of loss or damage, be liable for such portion only of the loss or damage as the amount insured by this policy shall bear to the actual cash value of such property.

In other words, the coinsurance clause provides that the insured shall maintain insurance on the property to a certain proportion of its value (usually 80 per cent); or, if he carries less insurance, he must be held to be his own insurer for the difference between the amount carried and the 80 per cent. Violation of the agreement does not invalidate the insurance, but, instead, places the insured in the position of being coinsurer with the insurance company.

The formula for the maximum indemnity under an 80 per cent coinsurance clause is as follows: P standing for "policy," L for "loss," and C for "cash value of insured property;"

$$\frac{P \times L}{0.80 \times C} = \text{maximum indemnity.}$$

When a policy contains a coinsurance clause, the actual indemnity is the lowest of three amounts: (1) the loss, (2) the policy, and (3) the maximum set by the above formula. This may be illustrated by the following example:

Description	Case 1 (when loss is lowest)	Case 2 (when policy is lowest)	Case 3 (when formula is lowest)
Cash value of property	$30 000	$30 000	$30 000
Insurance carried by insured	26 000	25 000	12 000
Loss by fire	12 000	30 000	12 000
Maximum indemnity set by formula	13 000	31 250	6 000
Actual indemnity	12 000	25 000	6 000

The "Average Clause."—The average clause in the Standard New York policy reads as follows:

This company shall not be liable for a greater proportion of any loss or damage to the property described herein than the sum hereby insured bears to . . . per centum (. . . per cent) of the actual cash value of said property at the time such loss shall happen. . . . If the insurance under this policy be divided into two or more items, this average clause shall apply to each item separately.

In other words, this clause provides that the policy shall attach in each building or division thereof, in such proportion as the value therein shall bear to the entire value of the property insured. For example, assume that a company takes out a blanket policy for $28,800, containing an 80 per cent coinsurance clause, on the contents of three warehouses, and a fire occurs in building B, damaging the contents of this building to the extent of $10,000. Assume further that the value of the contents of the respective buildings at the date of the fire was as follows: building A, $10,000; building B, $15,000; and building C, $20,000. To find the amount of indemnity, the procedure would be as follows:

$$\frac{\$10\,000.00 \times (\frac{1}{3} \times \$28\,800)}{0.80 \times (\frac{15}{45} \times \$45\,000)} = \$8\,000.00 \text{ indemnity.}$$

Insurance Carried in Several Companies.—Where two or more insurance companies insure the same property, the total indem-

nity is calculated as though all the insurance was issued by one insurance company. This indemnity is then allocated between the insurance companies in proportion to the insurance issued by each.

For example, a grain elevator company placed insurance on its grain to the extent of \$12,000, divided equally between insurance companies A and B. Insurance company A insured the grain for the following amounts: wheat, \$500; oats, \$2,000; and corn, \$3,500. Insurance company B insured the grain for \$6,000, the average clause specifying that this policy shall attach on each kind of merchandise covered, in proportion as the value of such merchandise bears to all merchandise. There is no coinsurance clause attaching to either of the policies. The sound values at the time of the fire were: wheat, \$3,000; oats, \$4,000; and corn, \$5,000. The loss on the grain was wheat, \$1,600; oats, \$2,000; and corn, \$2,400. How much should each insurance company pay on each kind of grain lost?

The \$6,000 policy with insurance company B is divided as follows:

$$\text{Wheat} \quad \frac{\$\ 3\ 000}{\$12\ 000} \times \$6\ 000 = \$1\ 500.$$

$$\text{Oats} \quad \frac{\$\ 4\ 000}{\$12\ 000} \times \$6\ 000 = \$2\ 000.$$

$$\text{Corn} \quad \frac{\$\ 5\ 000}{\$12\ 000} \times \$6\ 000 = \$2\ 500.$$

The loss on the grain would then be apportioned as follows:

	Insurance Company A	Insurance Company B
Wheat:		
Company A $\frac{\$\ \ 500}{\$2\ 000} \times \$1\ 600 =$	\$ 400	
Company B $\frac{\$1\ 500}{\$2\ 000} \times\ 1\ 600 =$		\$1 200
Oats:		
Company A $\frac{\$2\ 000}{\$4\ 000} \times\ 2\ 000 =$	1 000	
Company B $\frac{\$2\ 000}{\$4\ 000} \times\ 2\ 000 =$		1 000
Corn:		
Company A $\frac{\$3\ 500}{\$6\ 000} \times\ 2\ 400 =$	1 400	
Company B $\frac{\$2\ 500}{\$6\ 000} \times\ 2\ 400 =$		1 000
	\$2 800	\$3 200

Reinsurance.—Reinsurance may be defined as a contract whereby the reinsurer agrees to assume, in whole or in part, the risk which was undertaken by the original insurer. For instance, a fire insurance company doing a considerable volume of business usually reinsures stated portions of the risks written, which it does not care to carry itself, in other companies with whom it has reciprocal agreements, termed "treaties." These treaties are arranged with the various reinsuring companies (most of which are not direct writing companies), who are willing to assume stated portions of the risks written, under certain articles of agreement which are signed by both parties. These treaties eliminate the necessity of reinsuring each risk by correspondence. However, in the absence of a treaty, the reinsurance is usually arranged by correspondence with a friendly competitor.

Where a risk is reinsured, in whole or in part, with another carrier, the original insurer usually pays the loss sustained by the insured and recovers from the reinsurance company the amount for which it is liable. At stated periods the reinsuring companies are advised of the paid losses and expenses due on the policies ceded. Such amounts are usually settled by direct payments, or by the ceding company deducting them from what is due the assuming company for reinsurance premiums, according to the manner provided in the treaty.

Premiums.—The amounts paid to an insurance company for assuming the risk of indemnifying its policyholders are called "premiums." These premiums comprise, for the most part, the major portion of a fire insurance company's income, in return for which it promises to indemnify owners of property for their losses by fire.

Fire insurance, like all other forms of insurance, is essentially a business transacted upon the basis of the law of averages. When a fire insurance company has transacted business over a large territory for a long period of time, it can figure almost to a certainty what proportion of insured buildings will burn, and also the amount of its loss in those buildings. It can depend upon its experience in this respect to the same extent that the life insurance company can figure by its mortality tables the number of deaths which will occur at any given age. Accordingly there is a necessity for grading the various risks involved, and this necessity exists under all forms of insurance. It follows that, in determining the proper premium which should be charged

for any particular risk, a classification has to be made, all risks of a similar nature being treated as a class; then the total number of claims must be compared with the total number of risks and a "rate of probable loss" obtained, which can be made the basis of the premium for that particular class, allowance being then made for expenses, a margin of safety being also desirable to meet unknown contingencies, and to furnish a profit. Prominent risks, however, cannot be classified with other risks, but must be specially rated. Frequently, after a policy has been written a change in conditions involving a greater risk may increase the amount of the premium. In almost every case, however, fire insurance companies located in a certain territory belong to a Board of Underwriters, whose duty it is to fix the premium rate to be charged on every risk in its territory.

Insurance companies and their agencies keep track of their risks by means of so-called "insurance maps," which present accurate information relative to the location and exposure of every building in a given area and, by the use of various colors, their character, such as brick, stone, frame, or a combination of two or more of them. When insurance is issued on property located in a certain section of a city, the amount is recorded on the map, thus making it an easy matter to avoid excessive risks in a given locality. It is essential, therefore, to determine that the aggregate amount of payments by policyholders will be sufficient to meet the aggregate amount of claims and necessary expenses.

The system of what is termed "schedule rates" has been introduced and taken up generally by all insurance companies. By this system each risk is rated according to its own defects, or advantages, starting with a basic rate for a "standard" risk of the kind, and charging for any deviations therefrom, or crediting for any advantages therein, through fixed amounts. Fire hazard is, however, the vital factor used in the establishment of premium rates for fire insurance. Some fire hazards can be measured and others cannot. Some features of fire hazard are so small as to be unworthy of specific recognition, yet rates must be made to fit all conditions and to produce the premium income necessary to carry on the business.

One of the most important differences between fire and life insurance accounting is the distribution of premiums received between income and reserve. In fire insurance, the entire pre-

mium for the full term of the policy, whether it is for a period of one, three, five, or seven years, is paid in advance, instead of allowing the policyholder to pay the premium in instalments at stated periods during the life of the policy. Consequently, the whole of the fire insurance premium cannot be considered as income in the period in which it is received, but only that portion covering the number of expired months can be regarded as earned. The remainder must be held as a reserve to meet possible fire losses in the years which the policy still has to run. The method of computing the "earned income" and the "unearned premium reserve" will be discussed in detail under the section dealing with liabilities.

The premium on a policy running for a long time is proportionately less than on one covering a shorter period. For example, the premium on a three-year policy is twice, not three times, that on a one-year policy. Premiums received by insurance companies are returned to the insured when policies are canceled (other than by loss) before their expiration. It often happens that a policy is canceled for some reason or reasons and another one is written on the same risk, in the same insurance company. When this occurs, the entire amount of the "return" premium is prorated to the unexpired time. If the policy is canceled for reasons other than those mentioned above, the amount returned to the policyholder is the difference between the amount of the premium originally charged and what would have been the premium for the time elapsed. The amount charged for the elapsed time is referred to as the "short rate." Policies are often written by insurance companies and, for various reasons, the acceptance of same refused by the prospective policyholder before any premium is paid. When this situation occurs, the policies are canceled "flat," and the premiums are said to be "not taken," meaning that no premiums are charged, and, of course, there are no return premiums to be allowed.

Should the policyholder suffer a loss by fire on property covered by insurance, the insurance company does not rebate any of the premium for the unexpired time the policy has yet to run. In the event that the policyholder suffers a total loss by fire, the unexpired portion of the premium carried as a deferred asset on his books is lost, and should be charged against his Fire Loss account. When the policyholder suffers only a partial loss, the amount of the policy is reduced by the amount paid to the insured

by the insurance company. This latter amount is usually indorsed on the policy by the insurance company, thereby reducing the original amount stipulated in the contract. For example, if a policy was written for $3,000, and the insured suffered a partial loss of $1,000, the amount insured by the policy would be reduced to $2,000. If the property lost was replaced by the insured, he could then bring his insurance back to the original amount of $3,000 by taking out a new policy for $1,000 and paying the full premium on the new policy. The calculation of the policyholder's unexpired insurance premiums will then show that he lost a proportionate share of the unexpired premiums at the time of the fire.

Organization.—The organization of the home office of a fire insurance company has general supervision over all activities of the business. It is subdivided into many departments, each having charge of a specific function or service. The functional organization of a large insurance company, with its numerous departments and activities, is shown in Fig. 29.

Agencies.—If the activities of a fire insurance company are confined to limited areas and the volume of business transacted is small, it is possible to handle all the business through its home office. This single-office system soon becomes unwieldy and cumbersome with the expansion and growth of business, and, to meet this difficulty, the "agency system" was introduced. Under the agency system, the country is divided into districts, with a responsible head in charge of each district. The general agent, or manager, has charge of the business of his company throughout his district, receiving general instructions from the home office. Special and local agents are appointed and supervised by him, and he is held responsible for their activities.

The special agent is the connecting link between the district manager and the local agent and it is his duty to supervise the local agencies and prevent them from sacrificing the welfare of the company to their own pecuniary interests. He is paid a salary, instead of commissions, which salary is usually commensurate with the showing made for his district.

The local agent solicits business and actually writes the policies, being furnished with a certain number of blank forms, for which he is obliged to account. He is usually paid on a commission basis, in order that there may be an incentive to secure business.

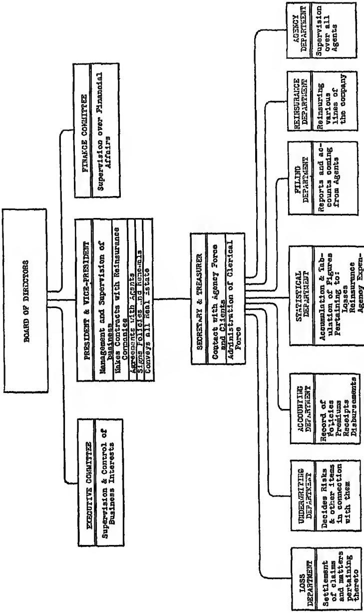


FIG. 29.—Organization chart—fire insurance company.

Legal Status.—Fire insurance companies are chartered institutions with their rights of existence and of transacting business derived from the state. Each individual state exercises supreme authority over the business transacted within its own territory, which results in a great deal of diversity in the laws to which companies are subjected. In nearly all cases these laws were enacted in the interests of the insured. A few have been passed for the purpose of raising revenue. It is necessary in most states for a company desiring to do business within its borders to secure a license from the proper state official. Before a company can begin business, it must satisfy the requirements of the Insurance Department of the state in which it is chartered. Whenever it wishes to write policies in any state besides the one in which it is chartered, it must first satisfy the Insurance Department of that state as to its solvency. Most states carefully outline the kind of securities which fire insurance companies may purchase, and prohibit the owning of real estate not used in the conduct of its regular business, except that which is obtained by mortgage loans foreclosed by the company. Some few states require companies from without the state to make a deposit for the security of policyholders within the state. This deposit is not required by all states, but, in lieu thereof, the deposit required by the company's native state is accepted as equal to a deposit in other states. In New York, before a corporation chartered by that state can transact business or issue policies, there is required to be deposited with the Superintendent of Insurance $200,000, or bonds, stocks, or acceptable securities representing that amount.

Accounting Books and Records.—The majority of the fire insurance companies in this country have developed their own accounting systems according to their own ideas and requirements, resulting in a lack of uniformity in accounting books and records, when comparing one company with another. In nearly every company, however, the system of accounts and the method of presenting the financial condition of the business are governed to a large extent by the Convention form annual statement. This makes it very desirable for each company to have its records so planned as to present quickly and completely the information called for in this statement.

The accounting system of fire insurance companies is kept on the "cash receipt and disbursement" basis, in a manner quite

similar in principle to that employed in life insurance companies and building and loan associations. They can perhaps be more favorably compared with the records of life insurance

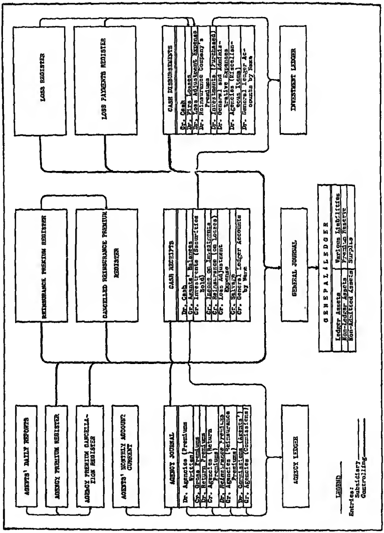


FIG. 30.—Chart of accounting books and records—fire insurance company.

companies in respect to the distinction observed between the books of account and those records which are, for the most part, statistical. Expenses are usually entered in the

books of account only at the time they are paid, so that cash is the principal item dealt with. Therefore, great care should be exercised to see that all expenses are paid at the close of the accounting period. Accruals, gross increase or decrease in book value of securities or real estate purchased, reserve for unearned premiums, and estimated fire losses are computed from the various records for entry in the annual statement, no entry being made of these accounts in the general ledger. If these accounts are entered in the general ledger, they are reversed immediately after the close of the accounting period.

It will be noted from the chart of accounting books and records (Fig. 30), that the accounting system is simple, comprising three main books of original entry, as follows: the agency journal, cash receipts book, and cash disbursements book. The entries made in all three of these records, as shown in the chart, are self-explanatory, and require no further explanation, with the possible exception of the agency journal. In this record is recorded the items affecting the agents' accounts, the accounts being kept by agencies and states, showing the total amount of business transacted for the month.

The original entries made in the accounting and statistical records of the home office are made from the individual agents' daily reports. These daily reports are used to report to the home office the business transacted by the agent, and constitute an important link between the company and the agent. After the daily report has been passed upon and approved by the underwriting department as to the risk and hazard involved, it then serves as a posting medium for the agency premium register. If, upon receipt of a daily report, the underwriting department decides that a risk involves too great a hazard, or is otherwise objectionable, the agent is notified to cancel the policy, which is obtained from the assured, and then serves as a posting medium for the cancellation register.

Various methods and systems are followed to record the information presented by the agents' daily reports; but in all cases a permanent record is made of the premiums and risks written by each agent. The data usually found on the daily report, the agency premium register, and the agency premium cancellation register are as follows:

Agents' Daily Reports

1. Amount of insurance written
2. Premium rate.
3. Amount of premium.
4. Rate of agent's commission.
5. Amount of agent's commission.

Agency Premium Register

1. Policy number.
2. Name of assured.
3. Description of property.
4. Amount of risk.
5. Amount of premium.
6. Term of insurance.
7. Date insurance begins.
8. Date insurance expires.
9. Remarks.
10. Date canceled.

Agency Premium Cancellation Register

1. Policy number.
2. Name of assured.
3. Description of property.
4. Amount canceled.
5. Original premium.
6. Term of insurance.
7. Date insurance began.
8. Date insurance expires.
9. Agent or broker.
10. State.
11. Amount of return premium.
12. Remarks.

While the above registers are usually statistical in character, the columns headed "amount of premiums" and "amount of return premiums" should agree with similar columns in the agency journal.

Monthly Account Current.—At the close of the month, each agent submits a monthly account current, which summarizes the information shown on the daily reports. In other words, this report summarizes all the business transacted during the month, and is used as the posting medium for the agency journal. The data reported is substantially as follows: gross premiums written, canceled premiums, net premiums, net commissions, agents' and other expenses, fire losses paid by agents, and balance due the home office.

Reinsurance Premium and Canceled Reinsurance Premium Registers.—The reinsurance premium and canceled reinsurance premium registers are used for the purpose of recording the amount of insurance ceded to the reinsurance companies and the subsequent cancellation of insurance previously ceded. These registers are usually subdivided according to the classes of business insured, and at the close of each month the money columns shown below under 9(*b*) in each register are used to determine the net liability for reinsurance premiums due the reinsurance companies. This net liability will, of course, be reduced when settlement is made with the reinsurance companies, by deducting losses on policies ceded, and commissions. The data usually found in these registers are as follows:

Reinsurance Premium Register

1. Name of reinsurance company.
2. Reinsurance number.
3. Policy number.
4. Name of agency.
5. Location.
6. Name of assured.
7. Description of property.
8. Ceding company's policy:
   (*a*) Amount of insurance.
   (*b*) Rate.
   (*c*) Amount of premium.
   (*d*) Term—date beginning and ending.
9. Assuming company's policy:
   (*a*) Amount of insurance.
   (*b*) Reinsurance premium.
   (*c*) Date beginning and ending.

Reinsurance Canceled Register

1. Name of reinsurance company.
2. Reinsurance number.
3. Policy number.
4. Name of agency.
5. Location.
6. Name of assured.
7. Description of property.
8. Ceding company's policy:
   (*a*) Amount of insurance.
   (*b*) Rate.
   (*c*) Amount of premium.
   (*d*) Term—date beginning and ending.
9. Assuming company's policy:
   (*a*) Amount of insurance.
   (*b*) Canceled reinsurance premiums.
   (*c*) Date beginning and ending.

Loss and Loss Payments Registers.—When notification is received by the insurance company from the agent of a fire or other event, through which a loss is incurred on policies issued by him, this advice receives a number, and is referred to the underwriting department to determine whether or not there is any reinsurance in force. If so, notation will be made on the advice sheet of the reinsurance companies having it and their proportionate liabilities. It is then returned to the loss department, and becomes a posting medium for the loss register. As will be noted from the captions of this register shown below, it is merely a transcript of the data received from the agent. At the close of the month, it is possible to determine from the loss register a fairly accurate figure as to the "estimated unpaid losses" for use in establishing this liability for entry on the balance sheet as a "non-ledger" liability. It also serves as the medium for recording the amounts to be recovered from the reinsurance companies. At the close of the month, the "reinsurance recovered" column is summarized for entry on the balance sheet, under the heading "non-ledger" assets. It may be stated that very few insurance companies make any further record of unpaid losses and reinsurances recoverable thereon, other than what has been entered in the loss register.

After the advice sheet is posted to the loss register it is placed in a "loss jacket," or other suitable filing receptacle, on the face

of which is transcribed data similar to that shown in the loss register. This loss jacket then becomes a filing receptacle for papers concerning the fire loss, and when final adjustment has been made and the amount of the loss approved it is turned over to the cashier for payment. The cashier posts it to the loss payments register and a check or draft for the amount payable is mailed the assured. At the close of the month, the columns headed, "loss" and "adjusting expense" are summarized for entry in the cash disbursements book, and from the latter record these amounts are posted to the respective general ledger controlling accounts.

The information usually found in the loss registers will vary, but it is highly important that all information called for in the Convention form annual statement be shown in these registers. This will facilitate the preparation of the annual statement, without the necessity of making an analysis of all the data pertaining to losses, such as estimated losses, paid losses, adjusted unpaid losses, etc. The data usually shown in the loss registers are as follows:

Loss Register

1. Loss number.
2. Name of assured.
3. Location.
4. Date of loss.
5. Estimated loss.
6. Reinsurance:
   (a) Name of reinsurance company.
   (b) Amount of reinsurances.
7. Class.
8. Payments:
   (a) Date of payment.
   (b) Amount of loss.
   (c) Adjusting expense.
9. Reinsurance recovered:
   (a) Date.
   (b) Reinsurance company.
   (c) Amount recovered.

Loss Payments Register

1. Number and date of check.
2. In favor of.
3. Payments:
   (a) Amount of loss.
   (b) Ocean marine.
   (c) Motor vehicles.
   (d) Aircraft.
   (e) Inland navigation.
   (f) Tornado.
   (g) Hail.
   (h) Sprinkler leakage.
   (i) Sundry.

Investment Ledger.—The investment ledger should show all data relating to the purchase and sale of securities, and be provided with extra columns for the purpose of showing the profit and loss on the sale of such securities and income received by way of interest and dividends thereon. The information with respect to interest is highly important as it becomes necessary

4 ANNUAL STATEMENT OF THE .... (Write or Stamp Name of Company) FORM 3

IV.—LEDGER ASSETS

1. Book value of real estate (less $........ incumbrances), per Schedule A, ... $
2. Mortgage loans on real estate per Schedule B, first liens, $........
other than first, $........
3. Loans secured by pledge of bonds, stocks or other collateral, per Schedule C, ...
4. Book value of bonds, $........ and
stocks $........ per Schedule D, ...
5. Cash in company's office, ... $
6. Deposits in trust companies and banks not on interest, per Schedule N, ...
7. Deposits in trust companies and banks on interest, per Schedule N, ...
8. (a) Agents' balances representing business written subsequent to October 1, 1922, ...
9. (b) Agents' balances representing business written prior to October 1, 1922, ...
10. Bills receivable, taken for fire risks, ...
11. Bills receivable, taken for risks other than fire, ...
12. Other ledger assets, viz ....
13. ....
14. ....
15. ....
16. Total Ledger Assets, as per Balance on page 3, ... $

Non-Ledger Assets

17. Interest due, $........ and accrued, $........ on mortgages, per Schedule B, ... $
18. Interest due, $........ and accrued, $........ on bonds, not in default, per Schedule D, Part 1, ...
19. Interest due, $........ and accrued, $........ on collateral loans, per Schedule C, Part 1, ...
20. Interest due, $........ and accrued, $........ on other assets, (give items and amounts), ...
21. ....
22. ....
23. Rents due, $........ and accrued, $........ on company's property or lease, ...
24. Total, ...
25. Market value of Real Estate over book value, per Schedule A, ...
26. Market value (not including interest in item 18) of bonds and stocks over book value, per Schedule D, ...
27. Other non-ledger assets, viz .... $
28. ....
29. ....
30. Gross Assets, ... $

Deduct Assets Not Admitted

31. Company's stock owned, $........ or loans on, $........ $
32. Supplies, printed matter and stationery, ...
33. Furniture, fixtures and safes, ...
34. Agents' balances representing business written prior to October 1, 1922, ...
35. Bills receivable, past due, taken for premiums, ...
36. Excess of bills receivable, not past due, taken for risks over the unearned premiums thereon, ...
37. Loans on personal security, endorsed or not, ...
38. ....
39. Book value of real estate over market value, per Schedule A, ...
40. Book value of bonds and stocks over market value, per Schedule D, ...
41. Book value of other ledger assets over market value, viz ....
42. ....
43. Total Admitted Assets, ... $

(a) Agency and home office premiums not over three months due less reinsurance, return premiums, commissions and agents' credit balances. No other items to be included.
(b) Agency and home office premiums over three months due less reinsurance, return premiums and commissions. No other items to be included.

FIG. 31.—Asset section of annual statement—fire insurance company.

to compute the "accrued interest" on investments in order to establish this "non-ledger asset" for balance sheet purposes. Furthermore, such a record will also aid in determining whether the market values of securities or other investments are "over" or "under" the book values, which variations are either added as a "non-ledger" asset or deducted as an "asset not admitted," whichever the case may be.

Assets.—The assets of a fire insurance company, as set forth in the annual statement, (see Fig. 31), are divided into three groups, namely, "ledger assets," "non-ledger assets," and "assets not admitted." The assets shown in the first group are similar in principle to those found in other enterprises; the second group represents accruals and various other items found in the subsidiary records; and the third group is composed of items shown in the first two groups which are required by law to be deducted in determining the total assets available for debt-paying purposes.

Non-ledger Assets.—This term does not mean that the items in this group are impossible of entry on the ledger, but that they are the result of an appraisal of all the resources belonging to the company. The assets which are ledgerized are revalued at market prices, and any increases over the book values (cost) are taken up in the annual report. The reason that accrued interest is not ledgerized is that all accounts other than "premiums" and "agents' balances" in fire insurance accounting are considered on a cash basis. Therefore, when the annual statement is made up, interest accruals are determined and brought into the financial statement classified according to the assets from which they arise, but are not entered in the general ledger. This same cash-basis principle is carried out in the case of reinsurance recoverable from reinsurance companies on paid losses, resulting in the omission of this asset account in the general ledger. Consequently, it becomes necessary to analyze the reinsurance recoverable column of the loss register to determine the unpaid items, instead of establishing accounts in the general ledger charging reinsurance companies for their proportion of the losses that have been paid and crediting the Paid Losses account.

Assets Not Admitted.—The total of the ledger and non-ledger assets comprise the "gross assets," from which is deducted the assets not admitted, in order to determine the total "admitted

assets" available for debt-paying purposes. The items shown under this group are self-explanatory.

Valuation of Assets.—One of the important factors in connection with the valuation of the securities, real estate, and other investments of fire insurance companies is the fact that they are valued at the current market price, regardless of book value (cost). In the event that the market value of the securities, real estate, etc. owned, is in excess of cost, or book value, the excess should be shown as a non-ledger asset. On the other hand, should the market value be less than the book value (cost), the difference should be deducted as an asset not admitted. In preparing a financial statement of an insurance company, the book value should always be shown under assets, and the market fluctuation in the assets shown either among non-ledger assets or assets not admitted, whichever the case may be. This is one of the few instances where it is proper to show the appreciation of an asset on a financial statement. Care should be exercised, however, in revaluing securities, real estate, and other investments, to see that the book value represents the cost value in applying the above, as some few companies make a practice of reducing or increasing the book value by amortizing bond values or adjusting book values to meet market values.

Liabilities.—Among the most important features in determining the financial condition of a fire insurance company are the establishment of: (1) amounts due policyholders on losses and claims, and (2) the unearned premium reserve. Both items may be properly classified as non-ledger liabilities, in that they are generally not ledgerized but are computed or established from the information given in the subsidiary statistical records.

Unpaid Losses and Claims.—It is quite obvious that at any time a fire insurance company will have numerous unsettled claims, or, in other words, claims for losses which have not been paid. At the time the claim is entered in the loss register, the company is not in possession of all the details of the claim, consequently only an estimated amount of the loss can be used. This estimate is generally based on the agent's opinion of the damage, and is revised from time to time upon receipt of additional information obtained previous to the settlement of the loss. It is from these estimates of unsettled claims in the loss register that the estimated amount of unpaid losses is determined. From an

accounting standpoint, it would perhaps be better to bring this item into the general ledger by the following journal entry:

Losses	$......	
Unpaid Losses		$. ....

These estimates, which are determined by the loss department, are usually rather liberal, necessitating an adjustment of the excess of the estimates over the payments. This adjustment is made by reversing the above entries, charging unpaid losses with the excess of estimates over payments, and crediting losses with a like amount. When settlement is made with the policyholder, the following entry is made:

Unpaid Losses	$......	
Cash		$......

It will be noted that the annual statement calls for certain information with respect to unpaid losses, as shown in the various subdivisions in Fig. 32. This makes it necessary to analyze the controlling account, Unpaid Losses, which is accomplished by listing the unpaid losses shown in the loss register, grouped, first, as to the nature of the risk, and then subdivided as to status, *i.e.*, adjusted, reported, or in process of adjustment, incurred but not reported, and resisted. From the total of this subdivision for each class of business is deducted the reinsurance in companies which is unpaid on the unpaid losses. It is necessary to support this deduction by a schedule of the reinsurance companies from whom the reinsurance is due, all of which must be admitted by such companies before credit can be allowed. At the time the unpaid losses are drawn off, the estimated expenses of investigation and adjustment, classified as to those on paid losses and those on unpaid losses, may be ascertained.

In the "adjusted column" is entered the gross amount of adjusted unpaid losses, both due and not yet due. Subdividing adjusted unpaid losses into those which are due and those which are not due is required because only 60 days are allowed companies to pay a loss after satisfactory proof of the loss has been received. "Reported" or "in process of adjustment" indicates the gross amount of reported unadjusted losses, except those resisted. The column provided to report "incurred but not reported" losses indicates the loss liabilities of the company at the close of the year, which have not been entered on the books prior to their

FORM 3 ANNUAL STATEMENT OF THE ______________________________ 5
(Write or Stamp Name of Company)

V.—LIABILITIES

1. Losses and claims:	(1) Adjusted	(2) Reported or in Process of Adjustment	(3) Incurred but not Reported	(4) Resisted	(5) Total	(6) Deduct reinsurance per Schedule E, columns (2) and (4)	(7) Net unpaid Claims
	$	$	$	$	$	$	$
2. Fire							
3. Ocean marine							
4. Motor vehicles							
5. Aircraft							
6. Inland navigation and transportation							
7. Tornado windstorm and cyclone							
8. Hail							
9. Sprinkler leakage							
10. Riot, civil commotion and explosion All other, viz.:							
11.							
12.							
13.							
14. TOTALS	$	$	$	$	$	$	$

15. Estimated expenses of investigation and adjustment of losses (paid losses, $______; unpaid losses $______

16. *Gross premiums (less reinsurance) received and receivable upon all unexpired fire risks effective on and after January 1, 1921, $______; unearned premiums thereon, per recapitulation, page 7, item 18, column 8 . . . $______

17. *Gross premiums (less reinsurance) received and receivable upon all unexpired risks, other than fire risks, effective on and after January 1, 1921, $______; unearned premiums thereon, per recapitulation, page 7, item 31, column 7 . . . ______

18. *Gross premiums (less reinsurance) received and receivable upon all unexpired risks effective prior to January 1, 1921, $______ unearned premiums thereon, per recapitulation, page 7 item 47, column 9 . . . ______

19. Total unearned premiums as computed above . . .

20. Amount reclaimable by the insured on perpetual fire insurance policies, being______per cent of the premium or deposit received . . .

21. Net premium reserve and all other liabilities, except capital, under the life insurance or any other special department . . .

22. Unused balances of bills and notes included in admitted assets, taken in advance of premiums on open marine and inland policies or otherwise, returnable on settlement not included in items 16, 17 and 18 above . . .

23. Principal unpaid on scrip or certificates of profits authorized or ordered to be redeemed . . .

24. Interest due or accrued, including $______on borrowed money . . .

25. Dividends declared and unpaid to stockholders, $______, to policyholders, $______ . . .

26. Salaries, rents, expenses, bills, accounts, fees, etc., due or accrued . . .

27. Estimated amount hereafter payable for federal, state and other taxes based upon the business of the year of this statement . . .

28. *Contingent commissions or other charges due or accrued* . . .

29. Funds held under reinsurance treaties . . .

30. Due and to become due for borrowed money . . .

31. All other liabilities, viz.: ______

32. ______

33. ______

34. **Total Amount of All Liabilities, Except Capital** . . . $______

35. Capital paid up . . . $______

36. Surplus over all liabilities . . . ______

37. Surplus as regards policyholders . . .

38. **Total** . . . $______

39. Amount of such surplus which constitutes a permanent reserve fund represented by scrip which by the terms of its issue cannot be redeemed so as to diminish said reserve (carried inside) $______

*By gross premiums is meant the aggregate of all the *premiums written in the policies or renewals*. Are they so returned in this statement? Answer: ______

Fig. 32.—Liability section of annual statement—fire insurance company.

closing. The column provided for resisted losses, has reference to the claims in which the company denies liability and is resisting the claims of the assured.

Unearned Premium Reserve.—Of all the liabilities shown in the annual statement, the unearned premium reserve is by far the most important, both as to the manner in which it is determined and as to volume. It will be noted that the treatment of premiums and of the reserves required by law to be carried by the two major classes of insurance companies is entirely different in fire insurance than in life insurance. In life insurance, all the calculations are based on a certain premium paid in advance each year. In fire insurance, the premium is earned in proportion to the time elapsed, or, in other words, the premiums charged over a period of from one to five years are not earned until the expiration of those periods. Therefore, a fire insurance company must establish from its records the unearned premium reserve required to be carried by law, not only to provide against anticipating earnings, but also to provide for the return of premiums to the assured in the event the policy is canceled, either by the assured or by the fire insurance company. This reserve must not be considered as a reserve out of which claims for losses may be paid. It is true, that, when a loss occurs, the unearned premium reserve is reduced by that portion of the premium, which at the time of the loss is unearned, and this portion only may contribute to the payment of the loss. Therefore, the difference between the unearned premium and the amount of the fire loss must be paid out of the assets which do not offset the unearned premium liability.

Computation of the Unearned Premium Reserve.—In order to establish the unearned premium reserve, it is first necessary to determine the net premiums in force, which are computed by deducting the canceled and net reinsurance premiums from the gross premiums written. This information is obtained by examining the various columns relating to premiums and the cancellation of premiums in the following records: (1) agency premium register, (2) agency premium cancellation register, (3) reinsurance premium register, and (4) reinsurance premium cancellation register. After this information has been summarized in each of the above-mentioned registers, it is posted to a premium-in-force register, which should show the amounts of risks covered and the premiums charged for each expiration.

Having determined the net premiums charged for each expiration, it is then necessary to compute the unearned premium reserve. Perhaps the most commonly accepted method of computing this reserve is on the annual basis, which works satisfactorily when the volume of business is uniform throughout the year. This method assumes that all policies were written on June 30, and expire on the same date one or more years later. To illustrate this method, the following tables are given of policies issued during the year 1923, showing the unearned premium fractions at December 31, 1923, and during subsequent years. The first table shows the method of computing the unearned premium fraction at the close of the first year in which the premiums were written; while the second table shows the unearned fractions at the end of each year until all the policies have expired.

Term of Policies, Years	Year Written	Year of Expiration	Months Earned	Months Unearned	Fraction Unearned, Dec. 31, 1923
1	1923	1924	6	6	6/12 or 1/2
2	1923	1925	6	18	18/24 or 3/4
3	1923	1926	6	30	30/36 or 5/6
4	1923	1927	6	42	42/48 or 7/8
5	1923	1928	6	54	54/60 or 9/10

Term of Policies, Years	Year Written	Unearned Premium Fractions 1923	1924	1925	1926	1927
1	1923	1/2	nil	nil	nil	nil
2	1923	3/4	1/2	nil	nil	nil
3	1923	5/6	3/4	1/2	nil	nil
4	1923	7/8	5/6	3/4	1/2	nil
5	1923	9/10	7/8	5/6	3/4	1/2

The fractions as shown in the tables above are applied to the total net premiums in force in each year to give the amount unearned. This may be illustrated by the following tabulation:

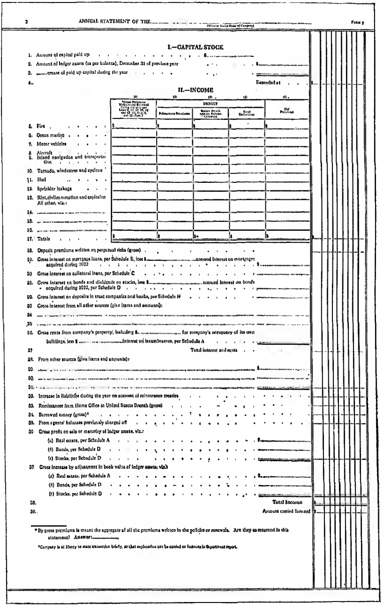
Term of Policies, Years	Year Written	Premiums in Force	Fractions Unearned Dec. 31, 1923	Premiums Unearned
1	1923	$ 5 200 ×	1/2	$ 2 600
2	1923	9 800 ×	3/4	7 350
3	1923	10 200 ×	5/6	8 500
4	1923	12 600 ×	7/8	11 025
5	1923	14 500 ×	9/10	13 050
		$52 300		$42 525

Proprietorship Accounts.—The proprietorship accounts of fire insurance companies engaged in the direct writing of insurance differ according to the types of organization carrying on the business. There are several distinct classes, such as stock companies (both foreign and domestic), mutual companies, and Lloyds. Of the three classes, the stock and the mutual companies are the more prominent in this country. The essential difference between the stock and the mutual plan is not so much in the accounting system, but in the appropriation or disposition of gains and losses.

Under the stock plan, the law requires a company at the time of incorporation to establish a paid-up capital, which forms an additional security for the protection of policyholders; and the assured pays a certain stipulated premium, which entitles him to indemnity in case of loss by fire within a given time. This plan entails no liability on the part of the assured, but substitutes a certain and definite periodic payment for the possibility of a loss of uncertain amount.

The net worth of a stock company is determined by deducting from the total available assets the amount of liabilities, which gives the surplus as regards policyholders, divided into capital stock and surplus, comprising the net worth of the company. It should be noted that this chapter, for the most part, deals with the accounting of a domestic stock company engaged in direct writing. Mutual companies, in their simplest form, raise by assessment the funds necessary to pay losses, after the losses have occurred, and all administrative expenses. Whenever losses are heavy, it is rather difficult to raise the required amount in this way, necessitating the collection of a part of the necessary funds by premiums paid in advance and the holding of the assured responsible for such additional amounts as may be required to pay losses. The liability of the assured is frequently limited, however, to a certain amount, or to a certain proportion of the cash premium. Many of the older companies have accumulated large surpluses, out of which they are able to pay any exceptional losses they may suffer. In normal years the accumulated surplus is returned to the policyholders in the form of dividends.

Statement of Income and Disbursements.—One of the principal functions of the statement of income and disbursements (see Figs. 33 and 34) is to prove the amount of the ledger assets appearing on the balance sheet. By referring to this statement,



2 ANNUAL STATEMENT OF THE .... (Write or Stamp Name of Company) FORM 2

I.—CAPITAL STOCK

1. Amount of capital paid up . . . . $.........
2. Amount of ledger assets (as per balance), December 31 of previous year . . . . . $.........
3. ......crease of paid up capital during the year . . . .
4. Extended at . . . $

II.—INCOME

	(1) [illegible]	(2) DEDUCT Reinsurance Premiums	(3) Return Premiums ... Cancelled	(4) Total Deductions	(5) Net Premiums
5. Fire	$	$	$	$	$
6. Ocean marine					
7. Motor vehicles					
8. Aircraft					
9. Inland navigation and transportation					
10. Tornado, windstorm and cyclone					
11. Hail					
12. Sprinkler leakage					
13. Riot, civil commotion and explosion All other, viz.:					
14.					
15.					
16.					
17. Totals	$	$	$	$	$

18. Deposit premiums written on perpetual risks (gross) . . . .
19. Gross interest on mortgage loans, per Schedule B, less $............ accrued interest on mortgages acquired during 1922 . . . . $.........
20. Gross interest on collateral loans, per Schedule C . . . .
21. Gross interest on bonds and dividends on stocks, less $............ accrued interest on bonds acquired during 1922, per Schedule D . . . .
22. Gross interest on deposits in trust companies and banks, per Schedule N . . . . . .
23. Gross interest from all other sources (give items and amounts):
24. ....
25. ....
26. Gross rents from company's property, including $............ for company's occupancy of its own buildings, less $............ interest on incumbrances, per Schedule A . . . . . .
27. Total interest and rents . . .
28. From other sources (give items and amounts):
29. .... $.........
30. ....
31. ....
32. Increase in liabilities during the year on account of reinsurance treaties . . . . . .
33. Remittances from Home Office to United States Branch (gross) . . . . . .
34. Borrowed money (gross)* . . . .
35. From agents' balances previously charged off . . . .
36. Gross profit on sale or maturity of ledger assets, viz.:
    (a) Real estate, per Schedule A . . . . $.........
    (b) Bonds, per Schedule D . . . .
    (c) Stocks, per Schedule D . . . .
37. Gross increase by adjustment in book value of ledger assets, viz.:
    (a) Real estate, per Schedule A . . . . $.........
    (b) Bonds, per Schedule D . . . .
    (c) Stocks, per Schedule D . . . .
38. Total Income $
39. Amount carried forward $

* By gross premiums is meant the aggregate of all the premiums written in the policies or renewals. Are they so returned in this statement? Answer:............

*Company is at liberty to state transaction briefly, so that explanation can be carried as footnote in Department report.

FIG. 33.—Income section of annual statement—fire insurance company.

Page 3 ANNUAL STATEMENT OF THE ______ (Write or Letter Name of Company)

Amount brought forward, $

III.—DISBURSEMENTS

	(1) Gross Amount Paid for Losses, less Discounts, if any	(2) Deduct: Reinsurance	(3) Deduct: Salvage	(4) Total Deduction	(5) Net Amount Paid Policyholders for Losses
1. Fire,	$	$	$	$	$
2. Ocean marine,					
3. Motor vehicles,					
4. Aircraft,					
5. Inland navigation and transportation,					
6. Tornado, windstorm and cyclone,					
7. Hail,					
8. Sprinkler leakage,					
9. Riot, civil commotion and explosion,					
All other, viz.:					
10.					
11.					
12.					
13. Totals,	$	$	$	$	$

14. (Amount paid for losses incurred in previous years included in item 13, column 1, $ ______)
15. Loss adjustment expenses,
16. Agents' compensation, including brokerage, $
17. Agents' allowances,
18. Field supervisory expenses:
 (a) Salaries of field men, $
 (b) Expenses of field men,
 (c) Executive—traveling expenses of others than field men,
19. Salaries and fees—directors, officers and clerks,
20. Rents, including $ ______ for rent only for company's occupancy of buildings owned,
21. Furniture and fixtures, including rent of and repairs to same,
22. Maps, including corrections,
23. Inspections and surveys, including underwriters' boards and tariff associations,
24. Federal taxes,
25. Taxes, licenses and fees:
 (a) State, county and municipal, $
 (b) Insurance department,
 (c) Fire department,
 (d) Fire patrol and salvage corps,
 (e) All other taxes, licenses and fees (except on real estate),
26. Postage, telegraph and telephone, exchange and express,
27. Legal expenses, excluding legal expenses on losses,
28. Advertising and subscriptions, $ ______ ; printing and stationery, $ ______
29. Miscellaneous, itemized, (a) ______ $
 (b) ______
 (c) ______
 (d) ______
30. Deposit premiums returned on perpetual risks,
31. Remittances to Home Office by United States Branch (gross),
32. Borrowed money repaid (gross),
33. Interest on borrowed money,
34. Real estate expenses.
 (a) Repairs and expenses, $
 (b) Taxes,
35. Paid stockholders for dividends (amount declared during the year, cash, $ ______ stock, $ ______),
36. *Scrip or certificates of profits redeemed in cash, $ ______ ; interest paid to scripholders, $ ______*
37. *Decrease in liabilities during the year on account of reinsurance treaties,*
38. Agents' balances charged off,
39. *Gross loss on sale or maturity of ledger assets, viz.:*
 (a) Real estate, per Schedule A, $
 (b) Bonds, per Schedule D,
 (c) Stocks, per Schedule D,
40. Gross decrease, by adjustment, in book value of ledger assets, viz.:
 (a) Real estate, per Schedule A, $
 (b) Bonds, per Schedule D,
 (c) Stocks, per Schedule D,
41. Total Disbursements, $
42. Balance, $

Fig. 34.—Disbursements section of annual statement—fire insurance company.

it will be noted that the income for the year is made up of cash receipts and increases in the valuation of assets, both of which are added to the amount of assets shown on the ledger at the close of the previous period. From this total are deducted the cash disbursements and decreases in assets, so as to prove with the amount of assets on the ledger at the present closing.

Annual Statement.—The annual statement shown in Figs. 31, 32, 33, and 34 is required by state laws to be filed by fire insurance companies with the State Insurance Commissioner, together with schedules showing: (1) real estate owned, (2) real estate acquired during last period, (3) real estate sold during last period, (4) bonds owned, (5) stocks owned, (6) bonds and stocks acquired during last period, (7) bonds and stocks disposed of during last period, (8) unlisted assets, and (9) lobbying expenditures.

The Underwriting and Investment Exhibit.—By referring to the annual statement, it will be noted that the "surplus as regards policyholders" is determined by deducting the total available assets from the total liabilities. This surplus figure is divided into "capital paid up" and "surplus over all liabilities." The latter surplus figure will not agree with any general ledger account, because adjustments are made in the annual statement which are not reflected in the general ledger accounts. For example, the annual statement includes the unearned premium reserve, unpaid losses, the net result of the revaluation of assets and other non-ledger liabilities, all of which are not shown in the general ledger accounts. As a result, it becomes necessary to prepare a statement of profit and loss, called the "underwriting and investment exhibit," shown in Figs. 35 and 36. This exhibit presents the two sources of net income and loss from underwriting and investments, the figures for which are obtained from the statement of income and disbursements, statement of assets and liabilities, and the annual report of the previous year. This exhibit is self-explanatory.

Special Auditing Features.—The auditor or examiner, since all Insurance Departments are required by law to make examinations of insurance companies chartered by the various states, must exercise unusual care to ascertain the exact financial condition of a company at the date of the examination. The cash in office should be counted, the bank balances verified, and confirmations secured in writing direct from the depositories,

10 ANNUAL STATEMENT OF THE

UNDERWRITING AND INVESTMENT EXHIBIT

Showing the Sources of the Increase and Decrease in Surplus during 1922

Gain in Surplus | Loss in

UNDERWRITING EXHIBIT

Premiums

1. Total Premiums per items 17 and 18, page 2, $ .... less $ .... per item 30, page 3. . . . $
2. Add Unearned Premiums Dec. 31, 1921, per item 4, of last year's exhibit, ...
3. Total, ... $
4. Deduct Unearned Premiums Dec. 31, 1922, per item 19, and $ .... reclaimable on perpetual insurance, per item 20, page 5. . . . .
5. Premiums Earned during 1922, ... $

Underwriting Profit and Loss Items

6. Gain from Agents' Balances previously charged off, per item 35, page 2, $ .... and from other underwriting income, $ .... per Income Exhibit, page 3 (a) .... $
7. Loss from Agents' Balances charged off, $ .... and from other underwriting disbursements, $ .... per Disbursement Exhibit, page 3, other than losses and expenses per items 14 and 23 of this exhibit (a) ....
8. (b) .... from items 6 and 7, ... $
9. Agents' Balances and Bills Receivable Not Admitted Dec. 31, 1921, per item 10 of last year's exhibit, $ ....
10. Agents' Balances and Bills Receivable Not Admitted Dec. 31, 1922, per items 31, 35 and 36, page 4, $ ....
11. (b) .... from items 9 and 10, ...
12. (b) .... from Underwriting Profit and Loss Items
13. Underwriting Income Earned during 1922, . . $

Losses

14. Losses paid, per item 13, page 3, ... $
15. Deduct Salvage and Reinsurance Recoverable Dec. 31, 1922, per items (a) .... page 4, . .
16. Balance, ... $
17. Add Salvage and Reinsurance Recoverable Dec. 31, 1921, per item 15 of last year's exhibit, ...
18. Total, ... $
19. Deduct Unpaid Losses Dec. 31, 1921, per item 21 of last year's exhibit, ...
20. Balance, ... $
21. Add Unpaid Losses Dec. 31, 1922, per item 14, page 5, .
22. Losses Incurred during 1922, ... $

Underwriting Expenses

23. (c) Underwriting Expenses paid during 1922, per Disbursement Exhibit, page 3, ... $
24. (d) Deduct Underwriting Expenses unpaid Dec. 31, 1921, per item 26 of last year's exhibit, ...
25. Balance, ... $
26. (e) Add Underwriting Expenses unpaid Dec. 31, 1922, per Liability Exhibit, page 5, viz.:—
27. Underwriting Expenses Incurred during 1922, . .
28. Underwriting Losses and Expenses, ...
29. (b) .... from Underwriting during 1922, (Carried Forward) $ $

(b) Write "Gain" or "Loss."

FIG. 35.—Underwriting exhibit—fire insurance company.

Form 2 ANNUAL STATEMENT OF THE .... (Name of Company) 11

			Gain in Surplus	Loss in Surplus

INVESTMENT EXHIBIT

Interest and Rents

30 Interest, Dividends and Rents received during the year, per item 27, page 2, less item 34, page 3, ... $ (Brought forward) $ $

31 Deduct Interest, Dividends and Rents due and accrued Dec. 31, 1921, per item 33 of last year's exhibit, . .

32 Balance, ... $

33 Add Interest, Dividends and Rents due and accrued Dec. 31, 1922, per item 24, page 4, less item 24, page 5, . .

34 Add Interest and Rents paid in advance Dec. 31, 1921, per item 36 of last year's exhibit, ...

35 Total, ... $

36. Deduct Interest and Rents paid in advance Dec. 31, 1922, per Liability Exhibit, page 5, ...

37. Interest and Rents Earned during 1922, ... $

Profit on Investments

38. Gain from Sale of Ledger Assets, per item 36, page 2, . $

39. Gain from Increase in Book Value of Ledger Assets, per item 37, page 2, ...

40. Gain from Change in Difference between Book and Market Value during 1922, ...

41. Gain from Other Investments, viz.:—(Give items and amounts)

42. Profit on Investments during 1922, ...

43. Investment Income Earned during 1922, . . . $

Loss on Investments

44. Loss from sale of Ledger Assets, per item 39, page 3, . . $

45 Loss from Decrease in Book Value of Ledger Assets, per item 40, page 3, ...

46. Loss from Change in Difference between Book and Market Value during 1922, ...

47. Loss from Other Investments, viz.:—(Give items and amounts)

48. Loss on Investments during 1922, ... $

Investment Expenses

49 (*d*) Investment Expenses paid during 1922, per Disbursement Exhibit, page 3, (Attach exhibit) . . . . $

50 (*a*) Deduct Investment Expenses unpaid Dec. 31, 1921, per item 52 of last year's exhibit, ...

51. Balance, ... $

52. (*a*) Add Investment Expenses unpaid Dec. 31, 1922, per Liability Exhibit, page 5, viz.:—

53. Investment Expenses Incurred during 1922, . . .

54. Investment Losses and Expenses during 1922, . .

55. (*b*) .... from Investments during 1922, . . $ $

MISCELLANEOUS EXHIBIT	Gain in Surplus	Loss in Surplus
56. Dividends declared to Stockholders during 1922, ...		$
57. Dividends declared to Policyholders during 1922, ...		
58. Remittances from Home Office (gross), ...	$	
59 Remittances to Home Office (gross), ...		
60. ...... crease in Special Reserves, ...		
61. (*a*, *b*) .... from Other Sources:—		
62.		
63.		
64. Net (*b*) .... from items 56-63, ...		
65 Total Gains and Losses in Surplus during 1922, ...		
66. Surplus Dec. 31, 1921, per item 67 of last year's exhibit, ...		
67. Surplus Dec. 31, 1922, per item 26, page 5, ...		
68. ...... crease in surplus during 1922, (Enter to balance)		
69. Totals, ...		

70 Per cent of losses incurred to premiums earned........

71. Per cent of underwriting expenses incurred to premiums earned........

72. Per cent of investment expenses incurred to interest and rents earned........

73. Per cent of total losses and expenses incurred and dividends declared to total income earned (sum of lines 23, 54, 56 and 57, divided by the sum of lines 13 and 43), ...

(*a*) Give statement number of each item or portion thereof included herein.
(*b*) Write "Gain" or "Loss."
(*d*) Include in this item one-eighth of one per cent of the Mean Invested Assets; Repairs, Expenses and Taxes on Real Estate; such other Taxes and Fees as apply to Investments and Personal Property only, and such other items, if any, as are known to apply exclusively to the assets of the company.

FIG. 36.—Investment exhibit—fire insurance company.

together with a statement as to any of the company's paper that may be held by the bank, or any paper on which the company is an indorser. Naturally, these cases, should there be any, would develop a liability, at least of a contingent nature, which must be given consideration in reaching the financial condition.

A trial balance taken from the general ledger would supply all information needed to complete the financial statement down to the consideration of the non-ledger assets. The next step is to examine the securities. All stocks and bonds should be checked with the investment ledger, and particular care exercised to see that the description is accurate and that interest coupons have not been clipped from the bonds prior to the due dates. The mortgage notes and papers and collateral notes and securities should be examined, especial reference being made to credits on the notes of partial payments on principal, and interest payments. It should be ascertained that all mortgages are first trusts, properly recorded, and that the property is insured in acceptable companies, with provision to pay the loss, if any, to the proper trustees. No second or third trusts are allowed as admitted assets, and each loan should be given careful consideration from the standpoint of the sufficiency of the collateral. The examiner should satisfy himself that the title to all real estate reported as owned by the company is clear, and that, where a mortgage exists, only the clear equity is included. The market value of stocks and bonds can be ascertained by consulting a reliable bond house, and the excess value over book value credited under non-ledger assets. If the market value is less than the book value, the difference should be deducted under the group of assets not admitted. Due and accrued interest and rents should be calculated and credit given therefor under non-ledger assets. Loans on personal security, agents' balances outstanding more than three months, overdue and accrued interest on bonds in default, and similar assets of an uncertain or prohibited character are deducted under assets not admitted.

CHAPTER XII

LIFE INSURANCE COMPANIES

Nature of Business.—The business of assuming the risk of financial loss by death is called life insurance. It may be defined as a contract under which one party, called the "insured," in consideration of certain stipulated payments, termed "premiums," agrees to pay to another a moneyed benefit upon the happening of a contingency dependent on the duration of a human life. In other words, life insurance companies sell only one commodity, namely, protection against death, receiving in return compensation in the form of premiums. They bear a close resemblance to other financial enterprises, in the respect that they hold large sums of money in trust for others, and are extensive investors. The business, however, was developed primarily as a means for anticipating and minimizing the losses so often caused inopportunely by death.

It is of interest to note one fundamental difference between life insurance and other kinds of insurance, such as fire, marine, accident, health, burglary, etc. In a life insurance company, issuing ordinary life policies, the company and the policyholder both know the contingency will happen, the only uncertainty being the period elapsing before the company will be called upon to pay the death claim. In the other forms of insurance, the company and the policyholder (if honest), both hope the contingency will never happen. In other words, companies handling forms of insurance other than life are not sure of a loss on each policy, even though the premiums are paid year by year according to the contract. There is a certain similarity, however, between straight life insurance and fire insurance, in the respect that age increases the life rate and fire hazard increases the fire rate. Age in people and fire hazard in property are analogous in these two main branches of insurance.

The Policy.—A life insurance policy is a contract wherein the insurer agrees to pay a certain sum of money to the insured or to the beneficiary named in the contract, in consideration of certain

payments being duly made at fixed periods during the life of the insured. In other words, a life insurance policy is primarily a contract to pay a certain sum of money upon the occurrence of a specified event. This event may be either the death of the insured, as in the case of a life policy, or the survival of the insured, as in the case of an endowment policy, payable because the insured is alive on a certain day. If the insured has complied with all provisions and requirements of the contract, and no fraud has been practiced, then the whole sum of money contracted for is due and payable either to the insured, his estate, or to a designated beneficiary under the legal limitations as to insurable interest. No question of indemnity or adjustment of damage, as in fire insurance, enters into the settlement of such claims.

A contract of life insurance must be supported by a legal insurable interest. In other words, when the insurance is affected by any person other than the insured, the beneficiary must have an interest in the continuance of the life of the insured, and not merely a monetary interest in his death. However, life insurance is usually affected by the insured rather than by the beneficiary; and, in the absence of any other insurable interest, such an interest may be found in his estate.

Policies are generally made incontestable for any cause after one year from date of issue, except for non-payment of premiums; but in any case where a policy is forfeited after the second year, a cash value, or its equivalent, based on the legal reserve belonging to the policy, is refunded to the insured. Lack of insurable interest will almost never be found a cause of forfeiture.

The four forms of policies which might be called the staple plans of life insurance, that are issued by practically all established companies in America today, are as follows:

1. Ordinary life policy.
2. Limited-payment life policy.
3. Endowment policy.
4. Term insurance.

These policies are briefly described as follows:

1. A life insurance policy which remains in force, if the premiums are paid, until the death of the insured is called an "ordinary life policy." When the insured dies, his beneficiary receives the stipulated benefit.

2. A life insurance policy which provides for the payment of a limited number of annual premiums, the protection extending

through the life of the insured, is called a "limited-payment life policy."

3. A life insurance policy of term insurance, combined with a policy giving the right to receive the face value if the insured survives the term, is called an "endowment policy."

4. Life insurance covering a definite number of years is called "term insurance." The person is insured only to the end of the time specified.

Premiums.—The payments made by the insured to the insurance company for assuming the risk or obligation stated in the policy are called "premiums," sometimes referred to as "gross" or "office premiums." If the entire premium is paid at one time, it is called a "single premium;" but, if it is paid in annual instalments, each instalment is called an "annual premium."

A life insurance premium is usually composed of two elements—the mortuary, or death risk, and the charge for expenses incident to the conduct of the business. The first element, or "net premium," is simply an equivalent of the present value of the benefit, calculated according to an assigned table of mortality and rate of interest. In other words, the net premium is the amount which the company would have to receive if the mortality exactly equaled the assumed mortality, if the interest earnings exactly equaled the assumed interest earnings, if there were no expenses involved in the conduct of the business, and if death losses were paid at the end of the policy year in which the death occurs.

The second element is called "loading," and comprises certain amounts added to the net premium to meet the expenses incident to the conduct of the business, and also to provide against unforeseen contingencies. The most important of these expenses are:

1. The expenses incurred in getting new business, such as the agent's commission (which takes a large part of the first annual premium), cost of medical examination, etc.

2. The cost of administering the business, such as salaries of administrative officers, cost of collecting premiums, etc.

3. A small amount to cover unforeseen contingencies.

The net premium plus the loading is called the "gross," or "office premium," and is the amount actually paid by the policyholder.

If the loading is done on a conservative basis, it is apparent that at the end of each year a surplus may remain after all ex-

penses have been met and sufficient provision has been made for the maintenance of adequate reserves for all policies in force. If the company is a mutual company, this surplus belongs to the policyholders, and an equitable method for distributing it must be found. If the company is a stock company, the surplus belongs to the stockholders.

Natural Premiums.—The two plans of life insurance in general use are the "natural premium" plan and the "legal reserve," or "level premium" plan. Each member under the natural premium plan is required to pay at the beginning of each year a certain sum, the total of which payments, together with the interest earned thereon during the year, will provide the company with sufficient funds to meet all the death claims of the period. Under this plan the premiums increase each year, for the reason that the risk of death increases as the age advances.

Level Premiums.—Most of our insurance today is based on the "legal reserve," or "level premium," plan. The premium paid by the insured under the level premium plan is based upon the age at which the policy was taken out, and remains unchanged throughout the life of the insured. The premiums charged in the early years are greater than are necessary to cover the insurance risk; but this excess must be held in reserve for the later years when advancing age will bring with it a rate of mortality higher than could be met by the net premium payable if it were not reinforced by a reserve accumulated in the earlier years. Therefore, it is quite apparent that the premium paid by the insured under the level premium plan is greater during the first years of his life than would be required under the natural premium plan; but, on the other hand, it is smaller than that required during the later years.

The Mortality Table.—If a large number of individuals are observed, and a record is kept of the number who die at each age, a surprising degree of conformity to the observed death rate is found in the case of any other large group of individuals of the same general character living under the same conditions. The results of such observations, carried on through a series of years, are embodied in a table, called a "mortality table."

The American Experience Table is the work of the actuarial department of one of the largest life insurance companies in this country. It represents approximately the experience of the company with respect to insured lives which were selected

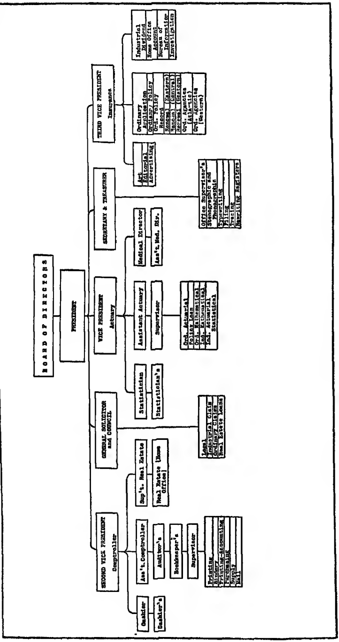


FIG. 37.—Organization chart—life insurance company's home office.

after a careful medical and personal examination. It traces the mortality of 100,000 persons from the age of 10 years to the age of 95 years, when the last one died, and it is the basis of calculation of premiums prescribed by many states of the United States. An experience table, differing somewhat from this table, is used in England, and shows a remarkable degree of agreement with respect to the number of deaths each year, although computed independently of the American Experience Table.

In order that an idea may be gained as to the make up and arrangement of such a table, a portion of the American Experience Table of Mortality is shown as follows:

At Age	Number Living	Number of Deaths	Yearly Probability of Dying	At Age	Number Living	Number of Deaths	Yearly Probability of Dying
10	100 000	749	0.007490	80	14 474	2 091	0.144466
20	92 637	723	0.007805	90	847	385	0.454545
25	89 032	718	0.008065	91	462	246	0.532466
30	85 441	720	0.008427	92	216	137	0.634259
40	78 106	765	0.009794	93	79	58	0.734177
50	69 804	962	0.013781	94	21	18	0.857143
60	57 917	1 546	0.026693	95	3	3	1.000000
70	38 569	2 391	0.061993	96	0	0	nil

The above-mentioned table is used by specially trained actuaries as a basis for calculating life insurance premiums. The calculation of premiums involves the theory of probabilities and various other features of higher mathematics which cannot be explained in a treatise of this character.

Organization.—The organization of a life insurance company, aside from its general administration, usually consists of two main divisions, namely, the home office and the field. The home office has general supervision over all activities of the business, and is subdivided into many departments, each having charge of a specific function, or service. The functional organization of a large insurance company, with its numerous departments and activities, is shown in the chart (Fig. 37). The field organization is divided into general agencies, small local agencies, branch offices, and business transacted by mail. This large field organization is charged with the duty of procuring new business and the collection of renewal premiums.

Legal Status.—Insurance companies are chartered institutions with their powers of existence and rights of transacting business derived from the state. State laws in relation to insurance usually provide for (1) supervision of the business by designated state officials and the scope of such supervision; (2) the amount of capital, deposits, reserves, and the character and amount of investments; (3) the forms of contracts of insurance, or the provisions which may be incorporated therein; (4) the regulation of agents; and (5) the character and amount of taxes and departmental charges.

In some of the states, however, there are laws, in addition to those described above, in relation to surrender values in contracts of life insurance; distribution of profits under contracts of participating life insurance; limitations upon the amount of insurance which may be carried upon one risk; prohibitions against removal of actions from state to federal courts; rebates of premiums on insurances; discriminations between insurants of the same class, and equal expectation of life and between white persons and colored persons, wholly or partly of African descent; retaliatory and reciprocal laws, and laws intended to alter the legal effect of misstatements made by an applicant in negotiations for a contract of insurance. This very considerable enumeration, though quite incomplete, illustrates the laws under which the business of insurance must be conducted.

Accounting Books and Records.—Most of the life insurance companies in this country have developed their own accounting systems according to their own ideas and requirements, resulting in a lack of uniformity in accounting books and records, when comparing one company with another. In nearly every company, however, the system of accounts and methods of presenting the financial condition of the business are governed to a large extent by the Convention form annual statement. This makes it very desirable for each company to plan its records so as to present quickly and completely the information called for in this statement. This usually requires the revision of existing forms and records, in both the home office and the field agencies, as new or additional information is constantly being required by the Convention statement.

As in the case of building and loan associations, the records of a life insurance company deal, for the most part, with cash receipts and disbursements. While there are numerous trans-

actions of both, the records are not complex, and in a great many respects resemble those of a building and loan association. As nearly all the transactions consist of the receipt and disbursement of cash, the records consist primarily of a series of cash books and the necessary subsidiary ledgers. The general cash journal is the principal record used in recording receipts and disbursements. Subsidiary to this record, there are a number of cash books for recording the income derived from the various respective sources. Among the more common of the subsidiary cash receipt

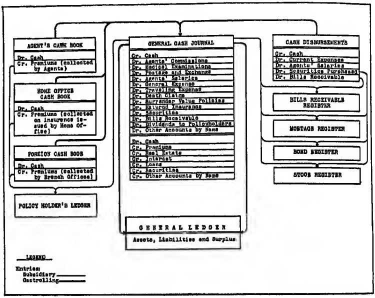


FIG. 38.—Chart of accounting books and records—life insurance company.

books are those shown in the chart of accounting books and records (Fig. 38), which indicates in a general way the nature of the various cash receipts and the sources from which they are derived. The cash disbursements book is a record of all expenditures made by the company in connection with the expenses incident to the conduct of the business, as well as for the purchase of securities. As indicated in the chart (Fig. 38), the summation of the results shown by the various subsidiary cash books are journalized for posting to the general ledger, in the general cash journal. The general cash journal is a columnar book, contain-

ing special columns for each of the more frequently used accounts in the general ledger as indicated in the chart (Fig. 38).

The general ledger, while similar to ledgers of the same name used in other enterprises, fails to give some of the results which might be expected of it. For example, the balance of the Premium account in the general ledger should equal the aggregate of all premiums credited to the accounts of the policyholders in the policyholders ledger. In practice, however, this control is very incomplete. It also fails to show either the face value of any policy (except those which have been canceled through the payment of death claims), or the reserve which is kept against those still in force.

The policyholders ledgers consist of a set of subsidiary ledgers containing the accounts of the various policyholders of the company. Usually duplicate sets are maintained, one set for use in the accounting department, to keep the company informed as to the status of each policyholder's account, and the other set for use in the actuarial department.

The set maintained in the actuarial department is used to secure the information necessary for the maintenance of the proper mathematical reserve against every class of policy. To present this information, it is usually necessary to separate the accounts into the various types of policies outstanding. The various types of policies are again subdivided on the basis of the age at which the policies were issued.

When it is desired to prepare information as to the premiums due but unpaid, for the annual statement, it is necessary to go through all the ledgers containing policy accounts and tabulate these results. This is a tedious process, and subject to a certain amount of errors, due to the enormous number of policyholders' accounts.

Due to the enormous investments of an insurance company, it is highly important to keep an accurate record of all securities owned, the most important of which consist of real estate mortgages and stocks and bonds of many corporations. A record of these securities is kept in registers, which show the par value, name of the security, rate of interest which the security bears, the due date in the case of a bond, the interest periods, and the price paid.

Assets.—The assets of a life insurance company are classified in the Convention form annual statement under three separate

divisions, namely, ledger assets, non-ledger assets, and non-admitted assets. The investments of a life insurance company shown under the division, "ledger assets," comprise anywhere from 70 to 95 per cent of its assets. These investments are regulated by the laws of the various states, and are usually limited to the classes enumerated in the Convention statement, shown in Figs. 40, 41, 42, and 43. The assets shown under the divisions "non-ledger" and "non-admitted" assets, are practically identical with those of a fire insurance company, which were treated in Chapter XI.

Liabilities.—Among the most important features in connection with the determination of the financial condition of an insurance company are the establishment of (1) the proper insurance reserve against the many kinds of policies issued, and (2) the amount of all accrued non-ledger liabilities. The nature of the non-ledger liabilities shown in the Convention statement will not be discussed, inasmuch as they are practically identical to those coming under this same caption in a fire insurance company, and fully treated in Chapter XI.

Policy Reserve.—The policy reserve is that part of the level premiums of the early years not required for mortality purposes, which is held and improved with interest by the insurance company to meet the heavier mortality of later years. The policy reserve should not be confused with the usual reserves established against unexpected losses or contingencies. Quite the reverse is true, the policy reserve being a liability of the insurance company to its policyholders, and, in a way, may be considered somewhat analogous to the liability of a bank to its depositors. The analogy given above is subject to a qualification, in that the reserve on a policy does not belong to the individual policyholder, in the sense that he can withdraw it at will, as he could a bank deposit, the reason being that the sum of the individual policy reserves correctly represents the reserve liability of the company in the aggregate.

Computation of Policy Reserve.—In the valuation of the policy and establishing the policy reserve, only the net premium which covers the death risk is considered, the second element, called "loading," being entirely eliminated. Premiums are always due at the beginning of the year. For example, every member of the group 35, including those who die before the end of the year, will have paid his share of the death claims. It is also

assumed that the death claims are all paid at the end of the year, but, in actual practice, they are paid as deaths occur.

The net level premium may be paid in one lump sum or in equal annual instalments. The former method of payment is called a "net single premium" and the latter a "net annual level premium." The "net single premium" may be defined as the individual share of the present value of the estimated death claims, and constitutes the mortality charge without any provision for paying operating expenses, etc. The computation of the "net annual level premium" on ordinary life policies is accomplished by (1) calculating the net single premium, (2) ascertaining the present value of an annual net level premium for $1 for the whole life, and (3) dividing the net single premium by the present value of a net annual level premium of $1 for the whole life. For instance, the calculation of the net annual level premium on an ordinary life policy for $1,000, at the age of thirty-five, money worth 3 per cent, is divided into the three operations as shown by the following tables:
First Computation:

COMPUTATION OF ORDINARY LIFE NET SINGLE PREMIUM

Age	Number Surviving Yearly, Each Insured for $1,000	Death Claims Payable Yearly		Present Worth of $1 Due at End of a Term of Years		Present Worth of Future Death Claims Yearly
35	81 822	$732 000	×	0.970874	=	$ 710 679 768
36	81 090	737 000	×	0.942596	=	694 693.252
37	80 353	742 000	×	0.915142	=	679 035 364
38	79 611	749 000	×	0.888487	=	665 476.763
39	78 862	756 000	×	0.862609	=	652 132.404
90	847	385 000	×	0.191036	=	73 548.860
91	462	246 000	×	0.185472	=	45 626.112
92	216	137 000	×	0.180070	=	24 669.590
93	79	58 000	×	0.174825	=	10 139.850
94	21	18 000	×	0.169733	=	3 055.194
95	3	3 000	×	0.164789	=	494.367
						$34 355 629.670

Therefore, $34,355,629.67 ÷ 81,822 = $419.88, the ordinary life net single premium, at the age of thirty-five.

Second Computation:

COMPUTATION OF THE PRESENT VALUE OF AN ANNUAL LEVEL PREMIUM OF $1 FOR ORDINARY LIFE

Age	Number Surviving Each Year		Present Worth of $1 Due at Beginning of Each Year		Amount of Money Payable First of Each Year
35	81 822	×	1.000000	=	$ 81 822.00
36	81 090	×	0.970874	=	78 728.17
37	80 353	×	0.942596	=	75 740.42
38	79 611	×	0.915142	=	72 855.37
39	78 862	×	0.888487	=	70 067.86
90	847	×	0.196767	=	166.66
91	462	×	0.191036	=	88.25
92	216	×	0.185472	=	40 06
93	79	×	0.180070	=	14.22
94	21	×	0.174825	=	3.67
95	3	×	0.169733	=	0.50
					$1 629 678.44

Therefore, $1,629,678.44 ÷ 81,822 = $19.92 = the little single premium, which is equivalent to an annual level premium of $1, payable for life from the age of thirty-five.

Third Computation:

To find the ordinary life net annual level premium per $1,000, the ordinary life net single premium is divided by the little single premium, which is the equivalent of an annual level premium of $1, payable for life at the age of thirty-five, as follows:

$419.88 ÷ $19.92 = $21.08 = ordinary life net annual premium per $1,000 at the age of thirty-five, money worth 3 per cent.

Comparison of Natural and Net Level Premiums.—It is apparent from the table of mortality that the death risk, or cost of insurance, increases as the insured grows older. Therefore, under the level premium plan, in which the premium remains constant throughout the period that the policy is in force, the net annual level premium must necessarily be higher than the natural premium, or death risk in the earlier years, to take care of the increasing death rate in the later years. Quite the reverse is true under the natural premium plan, as will be noted from the following comparison of the premiums paid under both plans, taking, for example, an ordinary life policy at the age of thirty-five.

The natural premiums are on insurance for one year at the respective ages, money worth 3 per cent in both cases.

Age	Net Annual Level Premiums	Natural Premiums	Over	Under
35	$21.08	$ 8.69	$12.39	
45	21 08	10.84	10 24	
55	21 08	18.03	3.05	
57	21.08	20.71	0.37	
58	21.08	22.27		$ 1.19
65	21 08	38.96		17.88
75	21.08	91.62		70 54
85	21.08	228.69		207.61
95	21.08	970 87		949.79

The calculation of the natural premium, or cost of insurance, on an ordinary life policy for $1,000, at the age of thirty-five, money worth 3 per cent, is as follows:

[$732,000 (death claims payable first year at age thirty-five) ÷ 1.03 (per cent)] ÷ 81,822 (individuals living at the beginning of the first year at age thirty-five) = $8.69, the natural premium or cost of insurance for first year at age thirty-five.

The "policy" or "terminal reserve" is the year-end balance after paying the year's death claims, while the total reserve for all policies is called the "aggregate terminal reserve." The mathematics behind the ordinary life reserve is apparent when Fig. 39 is studied. It also shows proof of the sufficiency of the ordinary life net annual level premium, age thirty-five, money worth 3 per cent.

The Amount at Risk.—It will be noted, from the following table, that there is considerable variation in the amount of the risk borne by the company at various periods during the life of the insured. For example, under the level premium plan, if the insured dies at the age of 35, *i.e.*, during the first year the policy was taken out, his beneficiary would receive $1,000, which, of course, includes the terminal reserve of $12.88 credited to his policy at the end of the year. Therefore, the sum paid to the beneficiary is composed of the terminal reserve, $12.88, plus the amount of the risk, $987.12. The amount of the risk is, of course, collected from the entire group at this age, since the net premiums received provide for the payment of the $987.12. The risk will be reduced and the terminal reserve increased as the insured grows older as shown by the following table, until the

	1	2	3	4	5	6	7	8	9	
Year of Insurance	Age	Number Surviving Yearly	Number of Deaths Yearly	Premiums Collected Yearly	Interest Collected Yearly	Total Income Yearly	Death Claims Yearly	Reserve Fund End of Each Year	Terminal Reserve per $1,000 of Insurance	Age
1	35	81 822	732	$1 724 908.89	$ 51 747.27	$1 776 656.16	$ 732 000	$ 1 044 656.16	$ 12.88	36
2	36	81 090	737	1 709 477 43	82 624.01	1 792 101 44	737 000	2 099 757.60	26 13	37
3	37	80 853	742	1 693 940.56	113 810.94	1 807 751.50	742 000	3 165 509.10	39.76	38
4	38	79 611	749	1 678 298.28	145 314.22	1 823 612.50	749 000	4 240 121.60	53.77	39
5	39	78 862	756	1 662 508.43	177 078.90	1 839 587.33	756 000	5 323 708.93	68.16	40
6	40	78 106	765	1 646 571.02	209 108.40	1 855 679.42	765 000	6 414 388.35	82.94	41
7	41	77 341	774	1 630 448.87	241 344.97	1 871 788.84	774 000	7 512 177.19	98 11	42
8	42	76 567	785	1 614 127.00	273 789.13	1 887 916.13	785 000	8 615 093.32	113.68	43
9	43	75 782	797	1 597 578.23	306 380.15	1 903 958.38	797 000	9 722 051.70	129.65	44
10	44	74 985	812	1 580 776.48	339 084.85	1 919 861.33	812 000	10 829 913.03	146.01	45
11	45	74 173	828	1 563 658.52	371 807.15	1 935 465.67	828 000	11 937 378.70	162.76	46
12	46	73 345	848	1 546 203.25	404 507.46	1 950 710.71	848 000	13 040 089.41	179.87	47
13	47	72 497	870	1 528 326.37	437 052.47	1 965 378.84	870 000	14 135 468.25	197 35	48
14	48	71 627	896	1 509 985.69	469 363 62	1 979 349.31	896 000	15 218 817.56	215.16	49
15	49	70 731	927	1 491 096.90	501 297.43	1 992 394.83	927 000	16 284 211.89	233.28	50
16	50	69 804	962	1 471 554 60	332 672.99	2 004 227.59	962 000	17 326 439.48	251.68	51
17	51	68 842	1 001	1 451 274 45	563 331.42	2 014 605.87	1 001 000	18 340 045.35	270.34	52
18	52	67 841	1 044	1 430 172.13	593 106.52	2 023 278.65	1 044 000	19 319 324.00	289 22	53
19	53	66 797	1 091	1 408 163.32	621 824.62	2 029 987.94	1 091 000	20 258 311.94	308 32	54
20	54	65 706	1 143	1 385 163.69	649 304.27	2 034 467.96	1 143 000	21 149 779.90	327.58	55
21	55	64 563	1 199	1 361 067.84	675 325.43	2 036 393.27	1 199 000	21 987 173.17	347.00	56
22	56	63 364	1 260	1 335 791.44	699 688.94	2 035 480.38	1 260 000	22 762 653.55	366.52	57
23	57	62 104	1 325	1 309 229.08	722 156.48	2 031 385.56	1 325 000	23 469 039.11	386.14	58
24	58	60 779	1 394	1 281 296.44	742 510.07	2 023 806.51	1 394 000	24 098 845.62	405.81	59
25	59	59 385	1 468	1 251 909.20	760 522.64	2 012 431.84	1 468 000	24 643 277.46	425.49	60
26	60	57 917	1 546	1 220 961.95	775 927.18	1 996 889.13	1 546 000	25 094 166.59	445.16	61
27	61	56 371	1 628	1 188 370.35	788 476.11	1 976 846.46	1 628 000	25 443 013.05	464.77	62
28	62	54 743	1 713	1 154 050.10	797 911.89	1 951 961.99	1 713 000	25 681 975.04	484.29	63
29	63	53 030	1 800	1 117 937.95	803 997.39	1 921 935.34	1 800 000	25 803 910.38	503.69	64
30	64	51 230	1 889	1 079 991.72	806 517.06	1 886 508.78	1 889 000	25 801 419.16	522.92	65

31	65	49 341	1 980	1 040 169.27	805 247 65	1 845 416.92	1 980 000	25 666 836.08	541.94	66
32	66	47 361	2 070	998 428.42	799 957.94	1 798 386.36	2 070 000	25 395 222.44	560.71	67
33	67	45 291	2 158	954 790.26	790 500.38	1 745 290.64	2 158 000	24 982 513.08	579 20	68
34	68	43 133	2 243	909 296.95	776 754.30	1 686 051.25	2 243 000	24 425 564 33	597 35	69
35	69	40 890	2 321	862 011.74	758 627.28	1 620 639.02	2 321 000	23 725 203.35	615 14	70
36	70	38 569	2 391	813 082.19	736 148.57	1 549 230.76	2 391 000	22 883 434.11	632.52	71
37	71	36 178	2 448	762 676.96	709 383.33	1 472 060.29	2 448 000	21 907 494.40	649.50	72
38	72	33 730	2 487	711 070.09	678 556.93	1 389 627.02	2 487 000	20 810 121.42	666.07	73
39	73	31 243	2 505	658 641.06	644 062.87	1 302 703.93	2 505 000	19 607 825.35	682.30	74
40	74	28 738	2 501	605 832.56	606 409.74	1 212 242.30	2 501 000	18 319 067.65	698 21	75
41	75	26 237	2 476	553 108.39	566 165.28	1 119 273.67	2 476 000	16 962 341.32	713.87	76
42	76	23 761	2 431	500 911.25	523 897.58	1 024 808.83	2 431 000	15 356 150.15	729.31	77
43	77	21 330	2 369	449 662.76	480 174 29	929 837.15	2 369 000	14 116 987.30	744.53	78
44	78	18 961	2 291	399 721.32	435 501.26	835 222.58	2 291 000	12 661 209.88	759.52	79
45	79	16 670	2 196	351 424.20	390 379.02	741 803.22	2 196 000	11 207 013.10	774 29	80
46	80	14 474	2 091	306 129.81	345 364.29	650 494.10	2 091 000	9 766 507.20	788.70	81
47	81	12 383	1 964	261 048.95	300 826.68	561 875.63	1 964 000	8 364 382.83	802.80	82
48	82	10 419	1 816	219 645.40	257 520.85	477 166.25	1 816 000	7 025 549.08	816.64	83
49	83	8 603	1 648	181 361.87	261 207.33	397 569.20	1 648 000	5 775 118.28	830.35	84
50	84	6 955	1 470	146 620.01	177 652.15	324 272.16	1 470 000	4 629 390.44	844.01	85
51	85	5 485	1 292	115 630.58	142 350.63	257 981.21	1 292 000	3 595 371.65	857.47	86
52	86	4 198	1 114	88 392.48	110 512.92	198 906.40	1 114 000	2 680 277.05	870 50	87
53	87	3 079	938	64 908.40	82 355.56	147 263.96	933 000	1 894 541.01	882.82	88
54	88	2 146	744	45 239.83	58 193.43	103 433.26	744 000	1 253 074.27	894.42	89
55	89	1 402	555	29 555.56	38 305.90	68 061.46	555 000	767 035.73	905.59	90
56	90	847	385	17 855.61	23 546.74	41 402.36	885 000	428 438.08	916 53	91
67	91	462	246	9 739.42	12 995.33	22 734.75	246 000	200 172.83	926 73	02
58	92	216	137	4 553.50	6 141.79	10 695.29	137 000	73 868.12	035 04	93
59	93	79	58	1 665.32	2 266.00	3 931.82	58 000	19 790.44	942 83	94
60	94	21	18	442.68	607.26	1 049.94	18 000	2 849.38	940.79	95
61	95	8	8	63.24	87.38	150.62	3 000	00.00	00.00	96

Fig. 39.—Terminal reserve—life insurance company.

end of the sixty-first year of insurance at which time the premiums received and the interest earned would bring the reserve up to approximately $1,000.

Year of Insurance	Age	Face Amount of Policy	Terminal Reserve	Amount at Risk	Age
1	35	$1 000.00	$ 12.88	$987.12	36
6	40	1 000.00	82 94	917.06	41
16	50	1 000.00	251.68	748.32	51
26	60	1 000.00	445.16	554.84	61
36	70	1 000 00	632.52	367.48	71
46	80	1 000.00	788.70	211 30	81
56	90	1 000.00	916.53	83.47	91
60	94	1.000.00	949.79	50.21	95
61	95	1 000.00	1 000.00	nil	96

From the above table it will be noted that the difference between the face amount of the policy and the terminal reserve at any given time will give the amount at risk.

Accounting for the Policy Reserve.—The policy reserve is, perhaps, one of the best examples of a non-ledger liability, or, in other words, a liability not shown in the general ledger. It is necessary, however, to compute this reserve at the end of each year for each class of policies in force, to determine the financial condition of the company. While this reserve is not entered in the general ledger, or other books of account, most of the transactions leading up to its computation are entered. All of these transactions (both actual and theoretical) relating to the policy reserve may be better understood by the following journal entries. Part of the figures used in the journal entries are taken from the first year of the table of mortality (Fig. 39), while the actual deaths, loadings on net premiums, and expenses incident to the conduct of the business are assumed.

Cash	$2 156 110.83	
Gross or Office Premiums		$2 156 110.83
To record receipt of gross or office premiums paid by policyholders. These premiums are made up of the net annual premiums and the loadings.		
Investments	1 044 656.16	
Cash		1 044 656.16
To record purchase of securities, bearing interest at 3 per cent.		

Cash	$ 51 747.27	
Interest		$ 51 747.27
To record receipt of interest received from investments.		
Gross or Office Premiums	2 156 110 83	
Interest	51 747.27	
Gross Income:		
Mortuary Fund (Cost of Insurance)		732 000.00
Policy Reserve Fund		1 044 656.16
Loading Fund		431 201.94
To establish the funds out of which the death claims and expenses incident to the conduct of the business are paid.		
Mortuary Fund (Gross Income)	730 000.00	
Death Claims		730 000.00
To establish the total death claims (paid and unpaid) for the entire year. Should the death claims exceed the mortuary fund, the difference would be taken out of the policy reserve fund. This situation will occur when the insured becomes 64 years of age, according to the table, Fig. 39.		
Death Claims	700 000.00	
Cash		700 000.00
To record payment of approved death claims made during year, the unapproved and unpaid death claims are shown as a liability at the close of the year.		
General and Administrative Expenses	400 000.00	
Cash		400 000.00
To record payment of actual expenses incurred during the year.		
Loading Fund	400 000.00	
General and Administrative Expenses		400 000.00
To transfer expenses of business to fund established to take care of such expenses.		
Gross Income:		
Mortuary Fund	2 000.00	
Loading Fund	31 201.94	
Surplus		33 201.94
To establish the margin resulting from a more favorable mortality experience than that called for by the table of mortality and margin afforded by a lower expense than that provided by the loadings.		

Surplus (Profit and Loss)	$20 000.00	
Cash		$20 000.00
To record payment of dividends to policyholders in a mutual company. In a stock company the policyholders would receive the savings resulting from a lower death rate and a higher rate of interest that that assumed by the table of mortality, while the stockholders would receive the savings resulting from a lower cost of operating the business than that assumed in the loadings.		

From the above transactions, the statement of cash receipts and disbursements would appear as follows:

Receipts:		
Gross or Office Premiums	$1 724 908.89	
Interest Received on Investments	51 747.27	
Loadings on Net Premiums	431 201.94	$2 207 858.10
Disbursements:		
Death Claims	$ 700 000.00	
General and Administrative Expenses	400 000.00	
Investments	1 044 656.16	
Dividends	20 000.00	2 164 656.16
Total Cash on Deposit		$ 43 201.94

The annual balance sheet would appear as follows:

Assets		Liabilities and Surplus	
Cash	$ 43 201.94	Mortuary Fund	nil
Investments	1 044 656.16	Policy Reserve Fund	$1 044 656.16
		Death Claims Unpaid	30 000.00
		Surplus	13 201.94
Total Assets	$1 087 858.10	Total Liabilities and Surplus	$1 087 858.10

Proprietorship Accounts.—The proprietorship accounts of the old line or legal reserve companies depend to some extent on whether they are conducted and controlled by the policyholders themselves for mutual insurance, or whether they are conducted and controlled by stockholders, whose capital forms an additional security for the protection of policyholders. The laws of many states provide that a mutual company starting business must raise what is called a "guaranty fund" for the protection of the policyholders. This guaranty fund may be

repaid to the guarantors out of the profits of the company in later years, with interest. Perhaps one of the most important differences between the stock and mutual plan, in connection with the proprietorship accounts, is the Surplus account. In a mutual company, all the surplus belongs to the policyholders, while in a stock company only the savings resulting from a lower death rate and a higher rate of interest than that assumed by the table of mortality is returnable to the policyholders.

The Annual Statement.—It is highly important to every insurance company to plan its records and reports, both in the home office and the field agencies and branches, so as to facilitate the preparation of the Convention form of annual statement. This Convention form of annual statement, which is required to be filed by each life insurance company, is shown in Figs. 40, 41, 42, and 43.

Profit and Loss Exhibit.—In addition to the financial statement required, the Insurance Departments have prescribed, as a part of the Convention form of annual statement, a profit and loss exhibit. The purpose of this exhibit is to analyze the accounts of the company for a particular period, and show the sources of profits or losses. The more important items included in the exhibit are shown below:

PROFIT AND LOSS EXHIBIT

Debits:		Credits:	
General and Administrative Expenses	$......	Loadings on Premiums for the Current Year	$......
Interest Required at the Valuation Rate to Maintain the Reserve	......	Interest Income for the Current Year	......
Actual Net Mortality	......	Expected Mortality	......
Values Paid and Applied on the Surrender of Policies	......	Reserve Released on Surrendered and Lapsed Policies	......
Dividends to Policyholders	......		
Miscellaneous Debits	......	Miscellaneous Credits	......
Surplus Carried Forward	......		
Total Debits	$.....	Total Credits	$......

In practice, considerable difficulty arises in determining accurate figures for use in the above exhibit. Usually the actuary is forced to approximate the figures, which destroys the value of this exhibit for comparative purposes. If actual figures can be determined, the value of this exhibit cannot be overestimated, for

2 ANNUAL STATEMENT OF THE FORM 1

I.—CAPITAL STOCK

1. Amount of capital paid up in cash, ... $ ....
2. Amount of ledger assets (as per balance) December 31 *of previous year*, ... $
3. ....crease of capital during the year, ...
4. EXTENDED AT. . . . . $

II.—INCOME

5. First year's premiums on original policies, without deduction for commissions or other expenses, less $.................for first year's reinsurance, ... $
6. Surrender values applied to pay first year's premiums, ...
7. Total first year's premiums on original policies, ... $
8. Dividends applied to purchase paid-up additions and annuities, ...
9. Surrender values applied to purchase paid up insurance and annuities, ...
10. Consideration for original annuities involving life contingencies, ...
11. Consideration for supplementary contracts involving life contingencies, . . .
12. Total new premiums, ... $
13. Renewal premiums (in addition to items 14, 16, and 17), without deduction *for commissions or other expenses*, less $...................for reinsurance on renewals, ... $
14. Dividends applied to pay renewal premiums, ...
15. Dividends applied to shorten the endowment or premium-paying period, . . .
16. Surrender values applied to pay renewal premiums, ...
17. Renewal premiums for deferred annuities, ...
18. Total renewal premiums, ...
19. Extra premiums for total and permanent disability benefits $ ....and for additional accidental death benefits $.................. included in life policies, ...
20. Total premium income, ... $
21. (a) Consideration for supplementary contracts not involving life contingencies, .
22. Dividends left with the company to accumulate at interest, ...
23. Ledger assets, other than premiums, received from other companies for assuming their risks, ...
24. Gross interest on mortgage loans, per Schedule B, less $.................. accrued interest on mortgages acquired during 19......, ... $
25. Gross interest on collateral loans, per Schedule C, ...
26. Gross interest on bonds and dividends on stocks, less $.................. accrued interest on bonds acquired during 19......, per Schedule D, ...
27. Gross interest on premium notes, policy loans or liens, ...
28. Gross interest on deposits in trust companies and banks, per Schedule E, . . .
29. Gross interest on other debts due the company (give items and amounts), . . .
30. ....
31. ....
32. Gross discount on claims paid in advance, ...
33. Gross rent from company's property, including $..........................for company's occupancy of its own buildings, per Schedule A, ...
34. Total gross interest and rents, ...
35. From other sources (give items and amounts):
36. .... $
37. ....
38. ....
39. ....
40. From agents' balances previously charged off, ...
41. Borrowed money (gross),* . . . .
42. Gross profit on sale or maturity of ledger assets, viz.:
    (a) Real estate, per Schedule A, ... $
    (b) Bonds, per Schedule D, ...
    (c) Stocks, per Schedule D, ...
43. Gross increase, by adjustment, in book value of ledger assets, viz.:
    (a) Real estate, per Schedule A, ... $
    (b) Bonds, per Schedule D (including $......................for accrual of discount), ...
    (c) Stocks, per Schedule D, ...
44. TOTAL INCOME, ... $
45. Amount carried forward, $

(a) Including commuted value of installments or other benefits not payable at the time of death or maturity of endowments, such commuted values being entered also under No. 1 or 2 of disbursements.
*Company is at liberty to briefly state transaction, so that explanation can be carried as footnote in department report.

FIG. 40.—Income section of annual statement—life insurance companies.

Form 7 LIFE INSURANCE COMPANY 3

Amount brought forward, $

III—DISBURSEMENTS

1. * For death claims (less $.................. reinsurance), $..................
   Additions . . . . $..................
2. * For matured endowments (less $.................. reinsurance), $..................
   Additions . . . .
3. (a) For total and permanent disability:
   Premiums waived during the year, ... $..................
   Payments made to policyholders during the year, ... $..................
   (b) For additional accidental death benefits . . . .
4. Net amount paid for losses and matured endowments . . . . $
5. For annuities involving life contingencies . . . .
6. Premium notes and liens voided by lapse, less $.................. restorations . . . .
7. Surrender values paid in cash or applied in liquidation of loans or notes . . . .
8. Surrender values applied to pay new premiums (see Income No. 6) . . . $..................
   To pay renewal premiums (see Income No. 16) . . . .
9. Surrender values applied to purchase paid up insurance and annuities (see Income No. 9) . . . . .
10. Dividends paid to policyholders in cash, or applied in liquidation of loans or notes . . . . . .
11. Dividends applied to pay renewal premiums (see Income No. 14) . . . .
12. Dividends applied to shorten the *endowment or premium-paying period* (see Income No. 15) . . .
13. Dividends applied to purchase paid-up additions and annuities (see Income No. 8) . . . . . .
14. Dividends left with the company to accumulate at interest (see Income No. 22) . . . .
15. (Total paid policyholders, $..................)
16. Expense of investigation and settlement of policy claims, including $.................. for legal expenses,
17. *Paid for claims on supplementary contracts not involving life contingencies* . . . .
18. Dividends and interest thereon held on deposit surrendered during the year . . . .
19. Paid stockholders for interest or dividends . . . .
20. Commissions to agents (less commission on reinsurance):
    First year's premiums, $..................; Renewal premiums, $..................
    Annuities (original), $..................; (Renewal), $..................
21. Commuted renewal commissions . . . .
22. Compensation of managers and agents not paid by commission for services in obtaining new insurance,
23. Agency supervision and traveling expenses of supervisors (except compensation for home office supervision) . . . .
24. Branch office expenses, including salaries of managers and clerks not included in Item 22 . . . .
25. Medical examiners' fees $..................; inspection of risks $..................
26. Salaries and all other compensation of officers, directors, trustees, and Home Office employees . . .
27. Rent, including $.................. for company's occupancy of its own buildings, less $.................. rent of own buildings . . . .
28. Advertising $.................., *printing and stationery* $..................; *postage, telegraph,* telephone, and express $..................; exchange, $.................. . . . .
29. Legal expense not included in Item 16 . . . .
30. Furniture, fixtures, and safes . . . .
31. Repairs and expenses (other than taxes) on real estate . . . .
32. Taxes on *real estate* . . . .
33. State taxes on premiums . . . .
34. Insurance department licenses and fees . . . .
35. All other licenses, fees, and taxes (give items and amounts):
36. Federal corporation tax other than income and profits tax . . . . $..................
37. Federal income and profits tax. . . . .
38. ....
39. Other disbursements (give items and amounts):
40. .... $..................
41. ....
42. ....
43. ....
44. Agents' balances charged off . . . .
45. Borrowed money repaid (gross) . . . .
46. Interest on borrowed money . . . .
47. Gross loss on sale or maturity of ledger assets, viz:
    (a) Real Estate, per Schedule A . . . . $..................
    (b) Bonds, per Schedule D . . . .
    (c) Stocks, per Schedule D . . . .
48. *Gross decrease, by adjustment, in book value of ledger assets, viz.*
    (a) Real Estate, per Schedule A . . . . $..................
    (b) Bonds, per Schedule D (including $.................. for amortization of premiums) . . . .
    (c) Stocks, per Schedule D . . . .
49. TOTAL DISBURSEMENTS . . . . $
50. BALANCE . . . . $

* Including commuted value of supplementary contracts—See No. 21 of Income.

FIG. 41. —Disbursements section of annual statement—life insurance company.

ANNUAL STATEMENT OF THE

IV—LEDGER ASSETS

1. Book value of real estate (less $........ encumbrances), per Schedule A . . . . $
2. Mortgage loans on real estate, per Schedule B, first liens . . . . $........
   Other than first liens . . . .
3. Loans secured by pledge of bonds, stocks, or other collateral, per Schedule C . . .
4. Loans made to policyholders on this company's policies assigned as collateral .
5. Premium notes on policies in force, of which $........ is for first year's premiums . . .
6. Book value of bonds, $........; and stocks, $........; per Schedule D,
7. Cash in company's office . . . . $........
8. Deposits in trust companies and banks *not* on interest, per Schedule E . ...
9. Deposits in trust companies and banks on interest, per Schedule E . . . .
10. Bills receivable, $........; agents' balances (debit, $........, credit, $........),
    net, $........ . . . .
11. ....
12. TOTAL LEDGER ASSETS, AS PER BALANCE ON PAGE 3 . . . . $........

NON-LEDGER ASSETS

13. Interest due, $........ and accrued, $........ on mortgages, per Schedule B $
14. Interest due, $........ and accrued, $........ on bonds, per Schedule D, Part 1 . . .
15. Interest due, $........ and accrued, $........ on collateral loans, per Schedule C, Part 1,
16. Interest due, $........ and accrued, $........ on premium *notes, policy loans, or liens,*
17. Interest due, $........ and accrued, $........ on other assets (give items and amounts),
18. ....
19. ....
20. Rents due, $........ and accrued, $........ on company's property or lease .
21. TOTAL INTEREST AND RENTS DUE AND ACCRUED . . . .
22. Market value of real estate *over book value*, per Schedule A . . . .
23. Market value (*not including interest* in Item 14) of bonds and stocks *over book value*, per Schedule D . . . . . .
24. Due from other companies for losses or claims on policies of this company, reinsured . . . .

	(1) NEW BUSINESS	(2) RENEWALS
25. Gross premiums due and unreported on policies in force December 31, 19...... (less reinsurance premiums)	$	$
26. Gross deferred premiums on policies in force December 31, 19...... (less reinsurance premiums)		
27. TOTALS	$	$
28. Deduct loading		
29. Net amount of uncollected and deferred premiums	$	$

30. All other assets (give items and amounts)........
31. ....
32. ....
33. ....
34. ....
35. GROSS ASSETS . . . . $........

DEDUCT ASSETS NOT ADMITTED

36. Company's stock owned, $........; loans on $........ . . . . $........
37. Supplies, stationery, printed matter, $........; furniture, fixtures, and safes, $........ ....
38. Commuted commissions, $........; agents' debit balances, gross, $........ ....
39. Cash advanced to or in the hands of officers or agents . . . .
40. Loans on personal security, indorsed or not, $........; bill receivable, $........ ....
41. *Premium notes, policy loans, and other policy assets in excess of net value and of other policy liabilities* on individual policies . . . .
42. Overdue and accrued interest on bonds in default . . . .
43. Market value of special deposits in excess of corresponding liabilities, per Special Deposit Schedule, page 10 . . . .
44. Book value of ledger assets over market value, viz: ....
45. ....
46. ....
47. ADMITTED ASSETS . . . . $........

FIG. 42.—Asset section of annual statement—life insurance company

FORM 1 ...... LIFE INSURANCE COMPANY 5

V—LIABILITIES, SURPLUS, AND OTHER FUNDS

Net present value of all the outstanding policies in force on the 31st day of December, 19......, as computed by the .... on the *following tables of mortality and rates of interest, viz:*

1. Actuaries' table at ...... per cent on* .... $......
   Same for reversionary additions,
2. American Experience table at ...... per cent on* .... $......
   Same for reversionary additions,
3. American Experience table at ...... per cent on* .... $......
   Same for reversionary additions,
4. Other tables and rates, viz.* .... $......
   Same for reversionary additions,
5. Net present value of annuities (including those in reduction of premiums). Give tables and rates of interest, viz: .... $......

   TOTAL, ... $......

6. Deduct net value of risks of this company reinsured in other solvent companies, ... $......
7. NET RESERVE, ... $......
8. Extra reserve for total and permanent disability benefits, $............; and for additional accidental death benefits, $............, included in life policies,
9. Present value of amounts not yet due on supplementary contracts not involving life contingencies *computed by the* ....
10. Present value of amounts incurred but not yet due for total and permanent disability benefits,
11. Liability on policies canceled and not included in "net reserve" upon which a surrender value may be demanded,
12. Claims for *Death Losses* due and unpaid, ... $......
13. Claims for Death Losses in process of adjustment or adjusted and not due,
14. Claims for Death Losses reported for which no proofs have been received,
15. Reserve for net Death Losses incurred but unreported,
16. Claims for Matured Endowments due and unpaid,
17. Claims for Death Losses and other Policy Claims resisted,
18. Claims for total and permanent disability benefits, $............; and for additional accidental death benefits, $............, including $............ resisted,
19. Due and unpaid on Annuity Claims involving life contingencies,
20. TOTAL POLICY CLAIMS,
21. Due and unpaid on supplementary contracts not involving life contingencies,
22. *Dividends* left with the company to accumulate at interest, and accrued interest thereon,
23. Premiums paid in advance, including surrender values so applied,
24. Unearned interest and rent paid in advance,
25. Commissions due to agents on premium notes when paid,
26. *Commissions to agents, due or accrued,*
27. "Cost of collection" on uncollected and deferred premiums, in excess of the loading thereon,
28. Salaries, rents, office expenses, bills and accounts due or accrued,
29. Medical examiners' fees, $............, and legal fees, $............, due or accrued,
30. Estimated amount hereafter payable for Federal, State, and other taxes based upon the business of the year of this statement,
31. Advances by officers or others on account of expenses of organization or otherwise,
32. Borrowed money, $............, and interest thereon, $............
33. Unpaid dividends to stockholders,
34. Dividends or other profits due policyholders, including those contingent on payment of outstanding and deferred premiums,
35. Dividends declared on or apportioned to annual *dividend* policies payable to policyholders to and including (month) .... (day) .... 19......, whether contingent upon the payment of renewal premiums or otherwise,
36. Dividends declared on or apportioned to *deferred dividend* policies payable to policyholders to and including (month) .... (day) .... 19......,
37. Amounts set apart, apportioned, provisionally ascertained, calculated, declared, or held awaiting apportionment upon *deferred dividend* policies, not included in Item 36,
38. *Reserve, special, or surplus funds not included above* (give items and amounts *separately, and state for what purpose each of said* funds is held):
39. ....
40. ....
41. ....
42. All other liabilities (give items and amounts):
43. ....
44. ....
45. ....
46. .... $......
47. Capital stock,
48. Unassigned funds (surplus),
49. TOTAL,

*State definitely the dates of issue and class of policies covered by each basis of valuation.

FIG. 43.—Liability section of annual statement—life insurance company.

details of extravagant management, unusually high mortality, and non-productive or questionable investments can be easily detected.

Special Auditing Features.—Insurance companies operate under the provisions of state laws which regulate and limit many of their activities. It is necessary, therefore, that an auditor acquaint himself with the state laws regarding life insurance companies before beginning an audit. The laws of the different states are much the same throughout the country with reference to general principles, but vary greatly in the details affecting operations. Among the detail duties of an audit, that of the close scrutiny and reconcilement of the asset evidences with the book records covers by far the greatest scopo, in point of time and importance. The securities themselves must be counted and carefully inspected by the auditor, in order that he may assure himself that they are proper and according to legal requirements. The market values of all securities must also be determined, and, if they are in excess of the book values (cost), the differences should be shown as non-ledger assets, and, if the market values are less than book values, the differences should be deducted as non-admitted assets.

In auditing the liabilities of an insurance company, the auditor should accept the figures of the State Insurance Commissioner, with reference to the determination of the legal reserve, even though the computation of this liability is the main feature of life insurance accounting. As the determination of the proper reserve is the task of a specialist, the auditor should not undertake the computation of it. Among the liabilities, the auditor should direct his attention particularly to premiums paid in advance; policy claims awaiting proof; accumulations upon deferred distribution policies; and miscellaneous current liabilities. The books of a life insurance company are ordinarily kept on a cash basis. For this reason, many liabilities often referred to as non-ledger liabilities do not appear on the books. For instance, death claims are settled in cash, and no entries of the claims appear on the books until settlements are made.

A very detailed analysis should be made of the Surplus account and payment of dividends. The states regard the Surplus account of a stock company as a provision for all contingencies not specifically provided for rather than as available for dividends, and they have, therefore, placed a limit on the rates which may be paid.

CHAPTER XIII

LAND DEVELOPMENT COMPANIES

Nature of Business.—Land development companies embrace those concerns, corporations, or syndicates which buy and deal in real property—either purchasing tracts of land for improvement, subdivision, and resale, or buying lots for the erection and renting of buildings.

Closely related to, and in some minds more or less confused with, land development companies, are brokers and real estate agents, who handle real property, but on a somewhat different plan. The broker buys and sells real estate on a commission basis, and acts only as an intermediary between seller and buyer. The earnings of a real estate agency are also on the basis of commissions, but it has for its object the management of property rented, as well as the renting and selling of property for others.

The operations of a typical land development company comprise the purchase of unimproved tracts of land for the purpose of improving and subdividing them into village or city lots, or small-area suburban residence plots, for resale on the basis of cash, or periodic instalments not unlike rent payments. A single land development company may acquire many different tracts, some of which may form part of a town or suburbs of a city, while others may be given names and become incorporated as separate boroughs. The improvements usually consist of platting the tract or tracts into streets, lots, parkways, and perhaps scenic effects; the installation of sewers and drainage appurtenances, and of water and gas supply pipes; the placing of poles and the wiring for telephones and electric lights; the laying of public sidewalks and paving of streets and public highways.

Usually, a public service corporation will install the electric, gas, and telephone service in consideration of receiving a franchise. Very often the water supply corporation will require a deposit to cover the cost of trenching and back-filling, with the understanding that this deposit will be returned as soon as

the service yields a certain rate on the investment. Where these improvements are not handled by public service corporations, the company must perform the work through its own agencies.

It is often the practice of residence district development companies to take upon themselves the maintenance of parks and driveways of subdivision properties in perpetuity. This is accomplished by creating a fund, in bonds or other securities, the income from which is used for the maintenance and care of the parks and driveways. When this fund has been accumulated —it is usually fixed at some definite amount—or at a time when all the lots have been sold, it is customarily turned over to a board of trustees, appointed by the lot owners, who assume the management of the parks and driveways.

The perpetuity plan is practiced in all modern cemetery organizations. In their case considerable sums of money are expended for the purchase and planting of trees and shrubs, laying out of drives and pathways, sodding, and building of greenhouses, etc. These must be maintained, else the cemetery fast deteriorates. A fund is created by setting aside a portion of the purchase price of burial lots, for the permanent upkeep of the cemetery.

In arid regions, many irrigation projects are undertaken; for instance, the fruit industry in some of the Pacific states was built up almost entirely through this means. Therefore, when an arid tract is developed, it becomes necessary for the development company to expend large sums of money to provide artificial means for the conveyance of water. The tract is then divided up into small farms, and, in some cases, the development company will advance to the purchaser of a farm, seeds, plants, fertilizers, and tools, in proportion to his holdings or needs. As crops ripen, they are marketed by the development company, and the proceeds credited to the account of the owner.

Factory sites are sometimes prepared *en bloc*, leveling and grading is done, drainage provided, also switching facilities are made with railroads not immediately contiguous, entailing the acquisition of intervening land for a right of way. Such a group is spoken of as a "factory colony," and may be handled after the manner of residence subdivisions. In fact, a development project may embrace both factory sites and residence lots adjoining, or within easy access, for the domiciling of factory operatives.

Organization.—The acquisition, development, subdivision, and sale of residence property, factory sites, burial grounds, farming areas, orange groves, or any other form of improved real estate may, of course, be carried on by a single individual, though they are in most instances projected by groups of persons acting as a unit, in the form of a partnership, a syndicate, or a corporation formed for the specific purpose.

The executive and administrative organizations of the larger companies are usually located in some town or city, and, radiating from this central point, there are branch offices, or agencies, covering the territory as far as the operations extend. A branch,

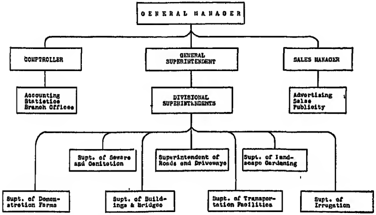


FIG. 44.—Organization chart—land development company.

in charge of a manager, may be maintained for both the sale of corporate stock in the project and the disposal of the company's land tracts.

Beyond the usual corporate officers, *i.e.*, a president, vice-president, secretary, treasurer, and a board of directors, the corporation also has its functional controlling officers. Among these may be a general manager, perhaps a divisional manager, a general superintendent, and divisional or functional superintendents in charge of specific parts of the work, for instance, a superintendent of buildings and bridges, one of roads and driveways, one of landscape gardening, one of sewers and sanitation, etc. The functions are delegated to as many as necessary in a large project, and in smaller undertakings some of these func-

tions are assumed by another functional head, or sublet by contract.

A chart showing a typical organization of a land development company is presented in Fig. 44.

Legal Status.—Land development companies usually acquire subdivision properties by deed of conveyance, paid for by cash or by mortgage payable. Sometimes, in order to secure funds for development purposes, a blanket mortgage is given, *i.e.*, a mortgage covering a part or the whole of a tract of land, consisting of different lots or areas. Such blanket mortgages provide that one or more areas may be released upon payment of a fixed amount per area or unit of subdivision. Under some conditions, a real estate development company will borrow money from a bank and give as security a mortgage on some vacant property not directly concerned in the development project. The interest on such mortgages must be treated as "carrying charges" for the project, the same as interest on blanket mortgages.

Sales of property by land development companies are usually made on the deferred-payment plan, which may be divided into the following classes: (1) sales, wherein the title of the property is conveyed to the purchaser upon the payment of a part of the sales price, the balance of which is secured by a mortgage made by the purchaser to the vendor; (2) by contract, which covers the terms of the sale, the title of the property being withheld by the vendor until the terms of the contract have been fulfilled; (3) the purchase of an option on real estate; and (4) the placing of deeds, etc. in escrow, to be delivered when certain specified conditions have been complied with.

Perhaps the more popular method in handling the sales of real estate in a subdivision is by contract rather than by mortgage. This may best be explained by a comparison of the two methods: Under a mortgage, the purchaser obligates himself to make certain specific payments at certain times, giving his note or notes to that effect. In the event of failure to comply with the terms of the mortgage, proceedings may be brought against him; and, in all probability, if he continues in his failure to make payments, judgment against him may be secured. The value of this judgment is sometimes of little account, due to the doubtful financial position of the purchaser.

The sales of property under many forms of contracts do not obligate the purchaser to continue the payments; for, if he should

fail to comply with the terms of the contract, he loses all payments that he has made. The vendor, however, cannot obtain a judgment against him, nor in any way compel him to pay the balance.

Accounting Books and Records.—The character of records to be kept by a land development company will, of course, depend upon the transactions involved and the steps necessary to carry those transactions to completion. The records should be devised so as to present the various important activities of the business from many angles. This is highly important to the management, for the various officers or committees of the company may require information concerning the activities of the concern from many standpoints. The major activities which the records should present are: (1) the recording of real estate acquired by the concern, (2) the recording of complete details of each sale, and (3) the recording of income arising from the operations of the business.

The records necessary to record the various activities mentioned above in a large land development company are as follows:

- General books of account:
  - Cash receipts book.
  - Cash disbursements book.
  - Journal.
  - General ledger.
- Subsidiary ledgers:
  - Unimproved tracts ledger.
  - Subdivision lots ledger.
  - Subdivision construction ledger.
  - Improved subdivision real estate cost ledger.
  - Improved subdivision real estate operating ledger.
  - Mortgages receivable ledger.
  - Mortgages payable ledger.
  - Subdivision contracts ledger.

General Books of Account.—In large companies, with many active subdivisions under development and sale, the cash book and journal are usually of the columnar type, for segregating and automatically operating control accounts as entries are made. A debit and credit column is assigned to, or prepared for, each subdivision or tract of land, in both the cash book and journal or in the cash journal, if these records be combined in one book.

In the general ledger a control account is maintained for each and every subsidiary record.

Subsidiary Ledgers.—Perhaps the only records which are peculiar to the business are those used to record the various transactions in the acquirement and sale of real estate.

The unimproved tracts ledger is used where it is desired to keep a detailed record of the cost and improvements made to each tract acquired. Controlling accounts are maintained in the general ledger with each tract, which should represent the cost of each until such time as they are divided into lots. The total cost of the tracts, which includes cost of improvements, is then prorated over the various lots of each tract, and a credit is then made to Unimproved Tracts in full, and a corresponding charge to each separate subdivision lot in the subdivision lots ledger. The basis for prorating the cost and improvements over the various lots in each tract will be discussed later.

The cost of the construction of buildings is carried in the subdivision construction ledger, but the cost of the land is not included. As the buildings are completed, the cost of each is transferred to the improved subdivision real estate ledger. At this point, the cost of each lot on which a building has been completed is credited to the respective accounts in the subdivision real estate lot ledger and charged to the cost of the respective account in the improved subdivision real estate ledger, the latter account showing the total cost of land and buildings.

The details covering the operation and maintenance of the improved real estate subsequent to its sale are carried in the improved subdivision real estate operating ledger, and at the end of the period are carried to the profit and loss accounts for each subdivision.

The mortgage receivable ledger contains a separate account for each and every mortgage held by the company. The top of each ledger sheet is given to the recording of descriptive data, and below these data are debit and credit columns for both "principal" and "interest and sundry charges." The data at the top include name of mortgagee, terse description of the property covered, date executed, maturity date, interest rate, dates of interest maturities, and transcription of annotations made by the County Recorder or other recording officer.

The mortgage payable ledger contains a record of all mortgages payable by the concern, and, so far as ruling and descriptive

data are concerned, it is somewhat similar to the mortgage receivable ledger.

The subdivision contracts ledger is maintained for accounts with purchasers of lots included in subdivisions handled by the

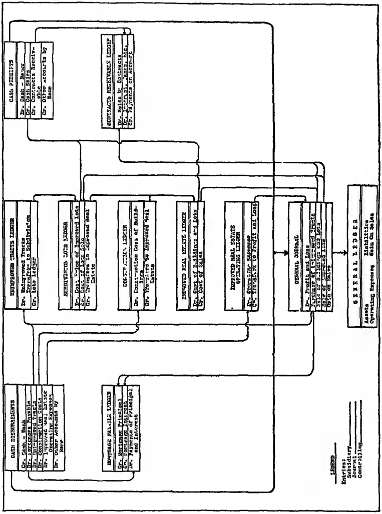


FIG. 45.—Chart of accounting books and records—land development company.

concern, for all sales on the deferred-payment plan not secured by mortgage. The data usually shown on each ledger sheet, aside from the charges and credits of money values, are name of

purchaser, sale price, date of contract, amount of initial payment, amount of subsequent payments with maturities or due dates thereof, rate of interest, and amount of insurance.

The functions performed by each record, the course of entries from one to another, and the general relation each bears to the other and to the system as a whole may be visualized by a study of the chart (Fig. 45).

Statistical Records.—It is also highly important to maintain certain records which will present the legal, statistical, and historical development of the property acquired and sold by the concern, for the information of the management. The usual records necessary to record the above information are as follows:

Subdivision histories.
Plat book.
Record of deeds received.
Record of deeds issued.
Record of contracts issued.
Record of options granted.

Assets.—The important feature, when dealing with the assets of a land development company, is not so much the nature of the assets themselves, but their proper treatment from an accounting standpoint in connection with their acquisition, development, and valuation. The accounting for the purchase of a tract of undeveloped land is comparatively simple, but, as the land is developed, there seem to exist many differences of opinions as to whether certain charges should be made against the unimproved property, thereby increasing the book value of the assets, or whether they should be considered purely operating expenses, chargeable to Profit and Loss. Therefore, the important points to consider are the proper distinctions between expenses and additions to capital. Foremost among these charges may be mentioned interest on the capital invested, taxes, administrative expenses, advertising, publicity, etc.

Another disputed point is the basis on which the cost price of the various lots of a subdivision should be determined, at the time they are placed on the market for sale. All these disputed points will be discussed in their proper sequence, together with the character and accounting features of the various assets.

Accounting for Property.—In comparing the accounting of a land development company with that of a mercantile or manufac-

turing enterprise, it will be noted that each item of the inventory of the former business has an individuality which is entirely lacking in the case of merchandise or manufactured goods. This feature makes it possible, in the accounting for real estate, to show both cause and effect with unusual clearness.

However, the accounting for the acquirement and development of property purchased by a land development company is similar in many respects to the accounting for a manufactured product. The property acquired may be regarded in the same way as merchandise. In its original unimproved state, it may be considered as raw material. When it has been improved, so that it is in condition to be sold as lots, it becomes a finished product. Therefore, all costs incurred in acquiring and improving the property up to the time it is put on the market for sale become a part of the cost of the property. Exactly as in a factory, the cost of the finished goods includes the material and labor that go into them, and also all the incidental or overhead expenses necessary to produce them. Similarly, in the case of property, to the cost of the raw material (unimproved land) must be added the labor and additional material in the way of streets, sewers, water and gas supply pipes, grading, etc. Also, there must be added the further expenses of administrative supervision and other overhead items necessary to the proper development of the unimproved land. To leave out the latter would imply that the property developed itself, without any supervision or incidental expense.

Elements of Costs.—The first element of cost entering into the accounting for land development companies is the actual amount spent or guaranteed in acquiring the unimproved land, which should include the purchase price, legal expenses of acquirement, and interest up to the time the land is put on the market for sale. Land is usually acquired by the payment of cash, or by a part payment of cash, the balance of the purchase price being represented by a mortgage or contract given or assumed by the purchaser. In the event that land is acquired by the part payment of cash, the balance of the purchase price being represented by a mortgage given or assumed by the purchaser, it would be brought on the books through the cash book and journal, as follows:

Unimproved Tracts	$50 000	
Cash		$10 000
Mortgage Payable		40 000

The principles applicable to the treatment of land acquired by a part payment of cash and the balance of the purchase price represented by a contract would be similar to the above illustration.

The second element entering into the cost of the unimproved land is the addition to the original purchase price of the cost of improvements. These costs include expenses of a tangible or intangible nature which are incurred in the development of the unimproved land up to the time it is ready for sale. These expenses may be brought on the books through the cash book or journal, as follows:

Unimproved Tracts	$30 000	
Cash		$ 1 500
Accrued Payroll		3 500
Accounts Payable		20 000
Improvement Reserve		5 000

When it has been decided by the management that sufficient improvements have been made to the tracts acquired, the cost of the land, as shown in the unimproved tracts ledger, is prorated over the lots in each subdivision. For the purpose of determining the cost price of each lot in the various subdivisions, due regard must be paid to the fact that all lots will not necessarily be of equal value, even if they be of equal area. Accordingly, the cost of acquiring and developing the whole subdivision, or tract, should be apportioned over all the available lots, by using the following ratio: Cost of one lot is to the total cost of all the lots as the proposed selling price of that lot is to the total proposed selling price of all the lots. The following illustration presents this method of allocating costs: For purposes of illustration, the total cost of land and improvements as shown by the Unimproved Tract account of a certain subdivision, at the time the various lots were placed on sale, amounted to $8,000, and the proposed sales price for all the lots in the subdivision was $12,000.

Lots	Proposed Sales Price	Per Cent	Allocation of Cost Price	Per Cent
A	$ 1 200	10	$ 800	10
B	1 800	15	1 200	15
C	2 400	20	1 600	20
D	3 000	25	2 000	25
E	3 600	30	2 400	30
Total	$12 000	100	$8 000	100

The position of the ordinary land company thus differs, to a certain extent, from a manufacturing concern with respect to fixing the cost price of its product. Some authorities, however, do not agree that the above-mentioned basis is correct for fixing the cost price per lot. It has been argued that, should the lots of each subdivision be fairly uniform and equal in area, the cost price of each lot should be computed by dividing the number of lots into the total cost of the subdivision, except where special expenditures have been made to certain lots for improvement purposes.

For purposes of illustration and simplicity, the accounting for improved land of a single subdivision, on which all the costs of improvements have been made, is shown below. The total cost of the land and improvements having been ascertained from the controlling account, Unimproved Tracts, in the general ledger, a transfer is made from this account to the Subdivision Lots account by the following journal entry:

Subdivision Lots	\$80 000	
Unimproved Tracts		\$80 000

The cost price of each lot is then computed according to one of the methods previously mentioned, and charged to each separate lot in the subdivision lots ledger. The sum total of all charges must, of course, articulate with the figure shown in the controlling account, Subdivision Lots, in the general ledger.

If the apportionment of costs over the various lots of a subdivision could be delayed until all expenditures for improvements had been made, it would, perhaps, be a comparatively simple matter then to apportion the whole outlay upon the entire subdivision. It often happens, however, that the lots of a subdivision are placed on the market for sale before all the improvements have been completed. Where this condition exists, it becomes necessary to estimate in advance the cost of all improvements that will be made in the future. This amount should then be credited to an Improvement Reserve account and charged to the Unimproved Tract account as follows:

Unimproved Tracts	\$ 5 000	
Improvement Reserve		\$ 5 000
For improvements contemplated.		

As expenditures occur, they should be charged against the Improvement Reserve. Care should be exercised in determining the amount of this reserve, for it should be too much rather than

too little. Any excess over the expenditures for improvements charged against this reserve should be credited to the Profit and Loss account, for it is obvious that the original cost of the improved land was overstated and the profits on sales were accordingly decreased. The following journal entries indicate the method of handling such a condition:

Improvement Reserve	$ 4 500	
Cash		$ 4 500
For contemplated improvements made.		
Improvement Reserve	500	
Profit and Loss		500
For amount of improvement reserve in excess of expenditures actually made.		

It is not unusual for a land development company to construct houses and other buildings on the lots of a subdivision. Where this is done, the cost of the buildings is recorded in the subdivision construction ledger, a separate account with each building being maintained therein, to record the cost of each. As each building is completed, the cost of each is transferred from its respective account in the subdivision construction ledger, together with the cost price of the lot shown in the subdivision lots ledger, to its respective account in the improved subdivision real estate cost ledger. This transfer is made through the journal in the following manner: It is assumed that the cost price of the lot is $2,000, and the cost of constructing the house was $8,000.

Improved Subdivision Real Estate Cost	$10 000	
Improved Subdivision Lots		$ 2 000
Subdivision Construction		8 000
To transfer both construction cost of completed house and cost price of lot to the account, Improved Subdivision Real Estate Cost.		

At this point, the property should be considered ready for sale, and all expenses necessary in maintaining and operating it until it is sold should be carried in the operating expense ledger, and at the end of each period the balance of this account should be charged direct to Profit and Loss. For statistical purposes, it may be found desirable to keep separate accounts in the operating expense ledger for each lot and building, in order that the net profit or loss for each may be ascertained. The following entries show the accounting for operating expense:

Profit and Loss	$568.21	
Operating Expense		$568.21
To charge off operating expense incurred to maintain house and lot properly until sold.		

Carrying Charges.—In the purchase of property by a land development company, certain expenses are incurred while the property is being developed or held which do not necessarily enhance the value of the land. These expenses usually consist of interest paid on money borrowed to purchase the unimproved property, and taxes. The question arises as to whether they should be included as a part of the cost of the unimproved property, thus increasing the inventory value of the property, or treated as purely financial expenses, deductible from income.

Many authorities hold that, should taxes and interest paid on borrowed money or interest on investment be added to the cost of the property being held or under development, the result would be an inflation of inventory values and an anticipation of profits. This practice differs from the procedure used by public utilities, who capitalize interest and taxes paid during the period of construction. It would seem that the position taken by public utilities with respect to interest and taxes paid should apply in the case of land development companies. If it is desired to keep such items separate from the land account, they may be carried in separate accounts. The total of these accounts can then be added to the cost of the property at any time it is desired to ascertain the total cost of the land. Such charges, however, should stop as soon as the development of tho land has been completed, and thereafter they become financial expenses deductible from income.

In the event that interest on investment is considered a capital charge, then interest paid on borrowed money during the period of construction should be considered a financial expense.

Assessments made on property by a town or city for the purpose of laying sidewalks, sewers, water mains, etc. do enhance the value of the land, and these can be considered legitimate capital charges.

Liabilities.—The liabilities of a land development company which deserve special comment are mortgages payable, options granted, and reserves established for the perpetual care of cemeteries, parks, driveways, irrigation canals, etc.

Sometimes property is acquired by a land development company by giving a blanket mortgage, *i.e.*, a mortgage covering a part or the whole of a tract of land consisting of different lots or plots. As lots are sold, the blanket mortgage provides that one or more lots may be released upon payment of a fixed amount per lot, in order that the purchasers of the lots may receive unencumbered titles to them upon the discharge of their indebtedness.

If an option has been granted, though not reduced to a contract, the amount of the option should be carried as a separate liability on the balance sheet. In the event of any option lapsing, the amount received for it immediately becomes a credit to Profit and Loss.

Reserves are sometimes established for the perpetual care and maintenance of certain objective improvements, by allocations from cash received from sales of lots. The liability for such funds is discharged by the transfer of them to a board of trustees duly authorized to receive them.

At the close of each period, it is important that liabilities for accrued interest on mortgages and contracts payable, taxes, salaries, etc. be established.

Proprietorship Accounts.—As land development companies operate as ordinary partnerships or as corporations, their capital accounts present no unusual accounting or auditing features.

Balance Sheet.—The balance sheet shown below presents the various real accounts usually found in the books of a land development company. Where more than one subdivision is handled, it will be found necessary to present separate schedules setting forth the position with respect to each subdivision.

NAME OF COMPANY

Balance Sheet

As of..................19....

ASSETS

Current Assets:		
Cash:		
Petty Cash Fund	\$......	
Cash in Banks	......	\$......
Receivables:		
Mortgages, Principal	\$......	
Mortgages, Interest	......	
Mortgages, Insurance	......	
Mortgages, Taxes	......	
Mortgages, Expenses	......	......

Mortgages in Settlement	$......		
Less Mortgage Deficiency Account	......	$......	
Contracts Outstanding		......	
Promissory Notes		......	
Sundry Debtors		......	
Inventories:			
Unimproved Tracts	$......		
Improved Subdivision Lots	......		
Construction of Buildings in Process	......		
Improved Subdivision Real Estate (lots with buildings)	......	......	$......
Deferred Charges:			
Advertising, etc.			......
Fixed Assets:			
Buildings		$......	
Furniture and Fixtures		......	
Tools and Equipment		......	
Transportation Facilities		......	......
Total Assets			$......

LIABILITIES AND CAPITAL

Current Liabilities:			
Mortgages Payable, Principal	$......		
Mortgages Payable, Interest	......	$......	
Contracts Payable		......	
Bills Payable		......	
Accounts Payable		......	
Accrued Payroll		......	
Accrued Taxes		......	$......
Reserves:			
Perpetual Care and Maintenance		$......	
Improvements		......	
Unearned Gross Profits		......	......
Net Worth:			
Capital Stock	$......		
Less Unissued Stock	......	$......	
Surplus:			
Beginning of Period	$......		
Addition during Period	......	......	......
Total Liabilities and Capital			$......

Expenses.—The all-important feature of the accounting for expenses of land development companies is the proper distinction between capital expenditures and revenue expenditures. It is generally considered that all expenses which have been incurred up to the time when the first lots are ready to be sold should be

added to the original cost of the land. Expenses incurred subsequent to the completion of the development work should be considered revenue expenditures. When lots are being sold simultaneously with the development operations, greater care is needed to differentiate between capital and revenue expenditures. In such instances, it is sometimes found necessary to prorate administrative costs between capital and revenue accounts upon some equitable basis.

Advertising and other expenditures made in the interest of facilitating sales should be charged direct to selling costs, or, under certain conditions, treated as deferred charges to future operations. Such expenditures may be necessary for advance advertising, and are gradually absorbed into costs through amortization charges, month by month, covering the period of selling activity.

Where more than one subdivision is being handled by a company, it becomes necessary to prorate the expenses over the various subdivisions according to the benefits derived by each. Expenditures incurred subsequent to the development of the property which may be classified as revenue expenditures are shown as follows:

General Administrative:
- Salaries
- Branch Offices
- Legal
- Postage
- Taxes
- Insurance

Selling:
- Commissions
- Advertising
- Printing
- Transportation
- Salaries
- Postage
- Telegrams
- Demonstrations

Maintenance:
- Repairs
- Upkeep
- Changes

Income.—The main sources of income of a land development company are the profits realized on its sales and accrued interest on deferred payments. The important feature to be considered in the accounting for income arising from the sale of improved lots and real estate is the distinction between carned profits and book profits, and that the difference between cost and selling price is all profit, provided a reserve is set up to cover cost of collection. The best plan is to spread the profit over the entire time, that is, to consider that proportion of total profit on a lot as carned which the amount paid on the lot bears to its total selling price. For example, assume that a company sold a certain lot in a subdivision for \$600, terms \$60 down and \$45 a month; the gross profit percentage based on the sale was 100 per cent. If the books were closed for the end of the fiscal period after the first monthly payments, the following entries would be made:

Contracts Receivable	\$600.00	
Improved Subdivision Lots		\$300.00
Gross Profits Unearned on Contract Sales		300.00
To record the sale.		
Cash	105.00	
Gross Profits Unearned on Contract Sales	52.50	
Contracts Receivable		105.00
Gross Profits Earned on Contract Sales		52.50
To record deposit and first monthly payment.		
Gross Profits Earned on Contract Sale	52.50	
Profit and Loss for Period		52.50
To close books.		

The computing of earned profits may be facilitated by a specially ruled contracts receivable ledger, having an extra column for the computation of earned profits. As payments are made, it becomes a mere routine matter to record earned profits, making it a simple matter to eliminate all unearned profits in the preparation of the profit and loss statement.

Cancellation of Time Sales.—There is always the possibility of lapses in the monthly payments, in which case the lots revert to the company. This provides a certain amount of profit, as the purchaser loses all payments made and the lots are resold by the company. The accounting for the cancellation of the sale presented in the above example is shown by the following journal entries:

Improved Subdivision Lots	$300.00	
Gross Profits Unearned on Contract Sales	247.50	
Contracts Receivable		$495.00
Cancellation Profits		52.50
To cancel contract		
Cancellation Profits	52.50	
Profit and Loss		52.50
To close books		

Special Auditing Features.—In the audit of land development companies, where large tracts of land are purchased and developed for sale in the form of small lots or farms, there are many important points to be considered. Inasmuch as most of these points have been previously treated, they will not be discussed, but merely mentioned as the important features to be considered in an audit of such companies. They are as follows:

1. An examination of the cost of the tract, or tracts, by analyzing the charges made to the original cost of the land while under development.

2. An examination of the basis used to establish the cost price of the various lots in each tract.

3. If a mortgage exists on the property, containing a clause permitting the release of specific lots upon payment of an agreed portion of the cost of the lots, it is important to see that the lots which have been fully paid for are thus released, so that title can be given to the purchasers.

4. Compare the record showing the selling prices of the lots, or the sales contracts, with the selling prices of the lots sold.

5. An examination should be made of the profits earned on sales made on the instalment plan which cover several months or years.

6. Where more than one subdivision is handled, determine whether or not an equitable distribution of expenses has been made between the various subdivisions.

7. Compare the payments made to salesmen for commissions on sales actually made with the contracts receivable ledger.

8. Examine the amount of accrued interest on mortgages and contracts, both receivable and payable.

9. Compare all mortgages and contracts with their respective entries on the various ledgers.

10. Send out verification statements to all customers, with the request that the auditor be notified of all inaccuracies.

11. Ascertain whether or not agreements have been entered into with the purchasers of lots for the perpetual care and maintenance of certain objective improvements. If so, see that proper reserves have been established by allocations of receipts from sales of lots.

12. Where advances are made purchasers of lots to cover taxes, insurance, etc., it is important to see that such advances are charged to the respective customers' accounts.

CHAPTER XIV

TIMBER, LOGGING, AND SAWMILL COMPANIES

Nature of Business.—The complete industrial chain of the lumber industry may be divided into the following classes of companies, with their operative functions and activities:

Class of Companies	Functions and Activities
1. Timber companies.	Ownership and sale of standing timber.
2. Logging Companies.	Cutting and transporting of logs to sawmill.
3. Sawmill companies.	Sawing logs into rough lumber, and the sale of by-products or coproducts; or a combination of the functions and activities of the first three classes of companies.
4. Lumber manufacturing companies.	Surfacing or "dressing" the product of the sawmill, seasoning lumber, manufacturing the finished lumber into various marketable products; sale of by-products and co-products, or a combination of the functions and activities of the four classes of companies.

The operations of the average lumber company may be divided into three principal divisions, *viz.*, the felling of trees, transporting the logs to the sawmill, and sawing the logs into rough lumber. In other words, the average lumber company comprises a combination of the functions and activities of the first three classes of companies shown above. Therefore, no attempt will be made to discuss the various and complex operations and accounting features encountered in the production of lumber products beyond the sawmill.

Lumber companies may acquire standing timber in several ways: (1) by the purchase of land and the timber standing on it, outright; (2) by the purchase of only the timber; and (3) by acquiring the mere right to cut and remove the timber on a royalty basis. The standing timber represents raw material to the average lumber company performing the functions of the first three classes of companies shown above, and is usually spoken of as "stumpage." When a tract of timber is acquired,

it is first "cruised," by a "timber cruiser," before it is cut, to determine the approximate amount of each kind of timber on each section of the tract, the unit of measure for stumpage being expressed in terms of trees, stumps, or "log scale."

Logging and Transportation.—The first operation in the production of rough lumber consists of felling trees and transporting the logs to the sawmill. Before the trees can be felled, however, it is necessary to do considerable work in the nature of clearing underbrush, etc., preparatory to log cutting, which is known as "swamping." The next operation consists of felling the standing timber and cutting it up into logs. This operation is called "log cutting," usually spoken of as "falling and bucking." Considerable work is then necessary in drawing the logs from the stump where they are felled to a more advantageous position for final loading and transportation to the sawmill. The pioneer companies which operated in virgin country transported their logs from the woods to the sawmills by floating them down streams or hauling them over snow- and ice-covered roads during the winter season. These methods are still practiced in some localities, but in the majority of lumbering operations, a railroad for hauling the log supply is part of the enterprise. The railroad usually consists of a "main line," of a more or less permanent character, with logging "spurs" projected into the uncut timber and moved from time to time as the timber becomes depleted. However, the methods used in transporting the logs to the sawmill are governed mainly by the topographic conditions, or the density of the timber in a particular timber tract. In recent years, tractors have been used with success in place of ox and mule teams. On large, densely timbered tracts, aerial tramways are rigged up, and in mountainous regions flumes are used, by which the logs are conveyed by force of gravity. Whatever means are employed to transport the logs, they eventually reach the sawmill, where they are dumped into the log pond, or are "banked" or piled in the log yard to await their consumption by the sawmill. Where log ponds are used, the handling and sorting of logs is greatly facilitated, and the water also keeps them in better condition for the saw.

Sawing, Sorting, Piling, and Seasoning.—One of the most important things to be considered by a lumber company owning its supply of timber is the proper location of the sawmill. In other words, the sawmill should be located within a reasonable

distance of the supply of timber. This is important, for the reason that the bulky character of the raw material, which, should it become necessary to haul it any great distance, would make the cost of the lumber prohibitive. The supply of timber must also be seriously considered, and should be sufficient to amortize the plant investment within a reasonable term of years. This factor also determines the size and character of the plant, the life of the average sawmill usually ranging from 15 to 25 years, depending, of course, upon the locality and the character of the timber and plant.

Among the auxiliary facilities needed in addition to the sawmill proper are derricks or traveling cranes for handling the logs from the cars or barges to the mill yard, and from the mill yard to the mill proper. A power plant is also required, as well as a machine shop, and teaming and other facilities. The first operation in the sawmill consists of sawing the logs into rough lumber, which becomes the finished product. The basis on which the logs are charged as a material in the production of rough lumber is 1,000 feet, board measure. This measure is an estimated quantity, based upon the diameter and length of the log, in which an allowance has been made for slabbing, or squaring, and also for saw kerf, on the assumption that the logs will be cut into 1-inch boards. The second operation occurs when the lumber reaches the sorting and grading tables, where it is sorted and graded as to quality and kind of lumber produced. The more accurate grading of lumber is done after it has been allowed to season, because at the time of production the lumber is green, or wet, and contains certain defects which are not visible to the eye until after the lumber has been thoroughly seasoned. This grading is usually done at the time the lumber is shipped.

The seasoning of the green, or wet, lumber is accomplished by piling it in the yard "on stick" (cross-pieces at center and ends) in such manner that every piece has adequate ventilation, allowing it to stay in pile until it is "air dried," or seasoned. Piling the lumber in this manner also keeps it from warping. The lumber, as a result of the seasoning process, loses approximately 25 per cent of its weight, thereby resulting in a saving in freight charges if the lumber is shipped in well-seasoned condition. Lumber is sometimes artificially dried in kilns, so that it can be shipped immediately.

The lumber is usually placed in piles of standard dimensions as to height and width, and these remain intact for at least 90 days for seasoning; sometimes they are held for a year or more. The completed piles are labeled with tags, showing the thickness, grade, and kind of lumber contained in the piles, and the number of board feet each pile is estimated to contain.

By-products and Coproducts.—A "by-product" may be defined as something produced in addition to the principal product, a natural concomitant not especially willed by the producer and for the subsequent handling of which no capital has been invested in processing machinery. The by-product of a sawmill consists principally of bark, sawdust, slabs, etc. All these by-products may be used for fuel for the power plant or may be sold for various commercial purposes.

Where special equipment is installed for the conversion of what might otherwise become scrap, waste, or offal, the commodities produced are known as "coproducts." The coproducts of a lumber company consist principally of shingles, laths, sawdust briquettes, etc.

Housing Facilities.—In logging operations of any magnitude, it is usually necessary to establish camps within the timber tracts, in which to feed and shelter the men, and provide necessary tools and equipment for their use. Where sawmills are located in rather remote places, the larger establishments usually include housing facilities for employees, fire protection equipment, a commissary store doing a general merchandise business, and often an electric light plant. In many instances, schools, churches, and other public buildings are also provided and maintained by the operators.

Organization.—The form of organization for a lumber company will depend largely upon the extent of its prospective operations and the manner in which the logging operations are to be carried on. The organization chart shown in Fig. 46 represents a typical lumber company, performing all the functions of the four classes of companies previously described, and utilizing a railroad as a means for transporting logs to the sawmill.

Legal Status.—The phases of the lumber business which most often occasion contact with the law, or legal procedure, are in connection with logging operations. The bonding of timber purchases implies the fixing of sinking fund contributions; and in many cases certain portions of a total bond issue must be

retired before logging operations can be commenced, this procedure, of course, being done in accordance with the law. Companies which transport their logs from the woods to the mill by "driving" them upon a stream are often obliged to construct dams to provide sufficient depth of water to float the logs, the construction of which will often cause the river to overflow its banks, submerging agricultural or grazing land. When permission to do this has been secured from the owners by a

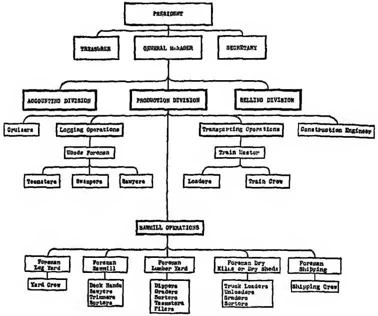


FIG. 46.—Organization chart—lumber company.

lease or rental contract, the company is said to have "flowage rights." This phase of the logging operations gives rise to much litigation, as the grantors of flowage rights often feel that their lands are damaged in excess of the amount of compensation agreed upon.

When any considerable number of logs is accumulated in a navigable stream, they are sometimes held in bounds by a "boom." If this empounding process obstructs the free movement of boats up or down the stream, objection may be raised

to it, particularly if thereby any mail matter is delayed. Competing concerns sometimes, perhaps maliciously, insist on the exercise of their "rights," at the expense of considerable loss to the competitor, from logs liberated by the severance of a boom, logs either being lost entirely or relocated only by the incurring of additional expense.

It frequently happens that, as the country in which a lumber company is operating opens up, the railroad used in the transportation of logs, supplies, etc. will also be utilized for the carrying of freight and passengers. This necessitates in nearly all cases that such road shall make connections with railroads operating in interstate commerce, which in turn necessitates its accounts being kept in conformity with the applicable government laws and regulations.

Accounting Books and Records.—*Financial Records.*—The records necessary for recording the financial transactions of the average lumber company are shown in the chart of accounting books and records (Fig. 47), which presents in diagrammatic form the functions of each, the course of entries from one to another, and the general relation each bears to the others and to the system as a whole. When an order for lumber is received from a customer, copies are made in duplicate, one copy being retained in the office as a part of the permanent records, and the duplicate sent the shipping clerk, who enters the necessary data on a tally card, showing the number of pieces, sizes, lengths, and description of lumber ordered. After the loading has been accomplished and each item checked, the tally card is returned to the general office and the sale recorded in the sales journal.

Lumber is usually sold "f.o.b. destination," or "freight allowed." If it is sold f.o.b. destination, the lumber company selling it will pay the freight. In case the lumber is sold "freight allowed," the freight is not paid by the shipper, but the estimated amount of the freight is added to the invoice sent to the purchaser. The estimated amount of freight added to the invoice is seldom correct, due to various inaccuracies and shrinkages in weights. Therefore, the freight paid by the purchaser is usually more than the amount estimated by the shipper. To adjust this difference, the purchaser deducts the actual amount of freight paid by him from the invoice and sends his check to the shipper for the balance due, together with the receipted freight bill. The transactions in

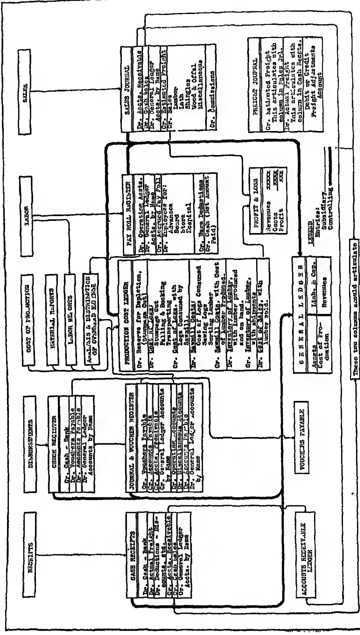


FIG. 47.—Chart of accounting books and records—lumber company.

the sale of a carload of lumber are better illustrated by the following journal entries:

Accounts Receivable	$2 200	
Lumber Sales		$2 000
Estimated Freight		200
To record sale of carload of lumber.		
Cash	1 900	
Estimated Freight	200	
Freight Adjustments	100	
Accounts Receivable		2 200
To record payments of invoice and freight adjustments.		

It will be noted from the above transactions that the purchaser paid $300 for freight on the carload of lumber, which was $100 in excess of the amount estimated by the shipper, the latter amount being charged to Freight Adjustments account. In the event that the actual amount of freight paid is less than the estimated amount, the difference is credited to Freight Adjustments account. At the close of the accounting period, the balance shown by Freight Adjustments account is either debited or credited to Lumber Sales.

The detail concerning the freight on all shipments is recorded in the freight journal, which should articulate with the controlling accounts for freight in the general ledger. It will be apparent that the controlling account for estimated freight will show a credit balance at the close of an accounting period, due to the fact that settlements of all outstanding accounts receivable are not made until sometime after the books are closed. The delay is mainly due to the element of time necessary in shipping the lumber by freight, settlements for which are not made until the lumber is received by the customer. The credit balance in this account should not be considered a liability, but should be shown as a deduction from accounts receivable in the balance sheet.

Where lumber companies maintain commissaries for the benefit of their employees, they are operated in practically the same manner as a retail store—on a self-sustaining basis, that is, the prices are regulated to cover the cost of operation, and not with the idea of making a profit. In the event that any profit is made by the commissary, it is shown in the company's book as Miscellaneous Income. All purchases made on behalf of the commissary are charged to it, and these charges are liquidated

either through transfers of cash receipts to the company, or by deductions from the wages of the employees on the company's payrolls. Deductions are also made from the payrolls for advances made to employees between pay days, these advances being charged to Wage Deductions and credit given this account at the time the deduction is made from the payroll.

Cost Records.—The cost records of a lumber company performing the functions of the first three classes of companies previously described, should be few, and not of an elaborate nature. They should present the logging and sawmill costs and statistics in a clear and succinct manner. The forms and records usually employed by such a company are as follows: payroll register, daily report of logs cut in woods, log summary, log cut by mill, and daily record of lumber cut. The columns in the payroll register should closely conform to those shown in the chart of accounting books and records (Fig. 47). The daily report of logs cut should show the locality in which the logging operations are being carried on and give a description of the logs cut. This record should also show the footage in logs, both according to log scale and board measure. These reports are then summarized on the log summary, which presents the monthly result of the logging operations. The form for recording the logs cut by the mill should contain information relative to the marks and the board feet contained in each length. The daily record of lumber cut contains details of the lumber delivered to the yard.

Cost of Production.—The activities of a company producing rough lumber may be divided into two major divisions, logging and the manufacture and sale of lumber as a product. Under these two major divisions may be grouped the various operations and cost factors entering into the production of the rough lumber, as follows:

Logging:
- Stumpage or timber depletion.
- Cutting logs.
- Transporting logs to mill.

Manufacturing and selling:
- Sawing logs.
- Sorting rough lumber.
- Stocking and seasoning.
- Loading and shipping.

The various operations necessary in the production of rough lumber may be better visualized by a study of the flow chart (Fig. 48), showing the natural flow of the product, from the standing tree to the finished product (rough lumber).

No plan of cost finding has yet been devised for determining accurately the costs properly assignable to each species, grade, and dimension of lumber making up the product of the sawmill. This is due to the fact that it would be extremely impracticable, and perhaps impossible, to keep separate costs on the cutting, transporting, and sawing of individual logs, inasmuch as the produc-

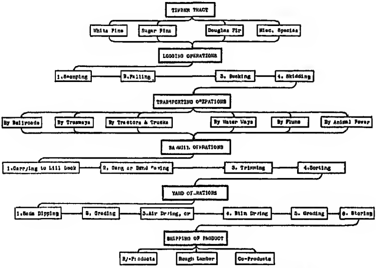


FIG. 48.—Flow chart for production of rough lumber.

tion of lumber is nearly always continuous and in large quantities. If such a plan were possible, it would be of little value in establishing selling prices, for it costs as much to cut, transport, and saw a log producing high-grade lumber as one producing low-grade lumber. Even in high-grade logs, various grades of lumber are produced in varying proportions. Also, in sawing, it takes just as long to cut a clear board as it does one filled with defects.

Such a condition makes it imperative that the lumber manufacturer secure a premium on the better grades of lumber, while the lower grades are sold at less than the average cost. In other words, the law of supply and demand, and the degree of utility,

must still determine the selling prices of the respective grades of lumber. Therefore, it is reasonable to assume that the costs of the various grades of each species should be treated in like manner.

Three methods are used in determining the cost of producing rough lumber—(1) the average mill-run cost, (2) the average mill-run cost by species, and (3) cost allocated to species and grades.

Average mill-run costs are determined by dividing the total cost of producing the lumber (including stumpage) by the number of feet of lumber produced, to determine the average cost per thousand feet. For example, if it cost $40,000 to produce 2,000,000 feet of lumber, the average cost per 1000 feet would be $20, which cost would be applicable to all species, both high and low grades.

In the "average mill-run cost by species" the same procedure is followed as under the first method, except that a segregation is made of species. The expense of cutting, transporting, and sawing the logs is distributed among the several species on the percentage which the number of feet of each species produced bears to the total production.

The "cost allocated to species and grades" is a continuation of the second method; and, in addition, each grade is valued at its value relative to all other grades. Both the second and third methods may be better understood by a typical example: It is assumed that all logs were cut from the company's timber tracts and that no logs were purchased from or sold to outside companies. There were no logs on hand in the woods at the beginning of the year, so no logs are shown on the inventory under "stumpage." The method of figuring stumpage and depreciation of sawmill, logging, and transportation equipment will be treated separately under the section dealing with "Assets." As a rule, the number of board feet of rough lumber produced by the sawmill will exceed the amount determined, or estimated, in the logs before they enter the sawmill. These "overruns" usually exceed the deck scale by approximately 10 per cent. For the purpose of simplicity, no difference is shown in the example, that is, the number of board feet (log scale) in the logs consumed by the sawmill produced a like amount of board feet of rough lumber. The figures shown in the following example are purely hypothetical, and do not represent average costs or current market prices of lumber.

THE LUMBER MANUFACTURING COMPANY

Statement of Cost of Production

Year Ending December 31, 1923

Timber:			
Stumpage Cut 14 000 000 feet @ $6.025 per thousand feet			$ 84 350.00
Logging Costs:			
Logging Labor		$103 150.00	
Operating Expense:			
Overhead Expense	$37 127.35		
Supplies	15 611.47		
Depreciation on Equipment	3 928.95		
Repairs	2 300 24	58 968.01	
Cost of Cutting Logs in Woods			162 118.01
Transportation Costs:			
Labor		$ 51 750.00	
Operating Expenses:			
Overhead Expense	$18 563.68		
Supplies	7 805.73		
Depreciation on Equipment	1 964.48		
Repairs	1 150.12	29 484.01	
Cost of Transporting Logs to Sawmill			81 234.01
Total Cost of Logs Delivered to Sawmill: (14 000 000 feet @ $23.41 average per thousand)			$327 702.02

	Feet	Average Cost per M Feet	Amount
Sawmill Costs:			
Logs Cut:			
On Hand, January 1, 1923	1 500 000	$21.00	$ 31 500.00
Produced as above	14 000 000	23.41	327 702.02
	15 500 000		$359 202.02
Less Inventory, December 31, 1923	1 900 000	23.41	44 479.00
Logs Consumed by Sawmill	13 600 000	23.14+	$314 723.02
Sawmill Labor			116 841.17
Operating Expense:			
Overhead Expense	$46 933.60		
Supplies	8 295.02		
Depreciation on Sawmill Equipment	5 672.61		
Taxes	6 946.22		
Repairs	6 326.56		74 174.01
Total Cost, 13 600 000 feet @ $37.1866 average mill-run cost, per thousand feet			$505 738.20

SECOND METHOD—AVERAGE MILL-RUN COST BY SPECIES

Species	Total Feet Produced	Per Cent of Total	Depletion per M Feet	Depletion Charge	Cost of Prod. of Species	Cost of Lumber Produced	Cost per M
White Pine	4 080 000	30	$7 50	$30 600 00	$126 620.46	$157 220.46	$38.537
Sugar Pine	1 360 000	10	6 00	8 160.00	42 200 82	50 360 82	37.037
Miscellaneous Species	8 160 000	60	5 50	44 880 00	253 258.92	208 138.92	36.537
	13 600 000	100		$83 640 00	$422 098.20	$505 738.20	

THIRD METHOD—COST ALLOCATED TO SPECIES AND GRADES

Market Value of Species by Grades

Grade	Feet Produced	Market Value per M Feet	Total Market Value
White Pine:			
D & Better	500 000	$101.80	$ 50 900.00
No. 1, Common	580 000	67.65	39 240.00
No. 2, Common	1 000 000	36.05	36 050.00
No. 3, Common	2 000 000	24.25	48 500.00
	4 080 000		$174 690.00

To find the cost of grades based on market value, divide the "total production cost of each species" (including stumpage), by the "total market value of each species," thus:

$$\text{White Pine } \frac{\$157{,}229.46}{\$174{,}690.00} = 90.0048 \text{ per cent.}$$

Therefore, the cost of each grade of white pine is 90.0048 per cent of its market value.

Grade	Total Market Value	Per Cent of Market Value	Cost of Grades Based on Market Value	Feet Produced	Cost per M Feet	Market Value per M Feet
D & Better	$ 50 900.00	90.0048	$ 45 812.45	500 000	$91.62	$101.80
No. 1, Common	39 240.00	90.0048	35 317.03	580 000	60.89	67.65
No. 2, Common	36 050.00	90.0048	32 446.73	1 000 000	32.45	36.05
No. 3, Common	48 500.00	90.0048	43 652.35	2 000 000	21.83	24.25
	$174 690.00		$157 229.46	4 080 000		

The same procedure will be followed to determine the value of each grade of lumber produced from the other species.

Lumber, if shipped in the rough as it comes from the sawmill and dry kiln, is a finished product; but if it is processed further before shipment, such as surfacing, resawing, etc., it is "goods in process," and not "finished goods."

The general and administrative expenses of a lumber company should be prorated between the producing and selling divisions upon an equitable basis, in order that each division may bear its proportionate share of these expenses.

The following summary of basic grade classifications for yard lumber is taken from the recommended "American Lumber Standards" as reported to the United States Department of Commerce by the Central Committee on Lumber Standards.

SUMMARY OF BASIC GRADE CLASSIFICATIONS FOR YARD LUMBER

Total products of a typical log arranged in series according to quality as determined by appearance.	Select Lumber of good appearance and finishing qualities.	Suitable for natural finishes.	Grade A—Practically free from defects.
			Grade B—Allows a few small defects or blemishes.
		Suitable for paint finishes.	Grade C—Allows a limited number of small defects or blemishes which can be covered with paint.
			Grade D—Allows any number of defects or blemishes which do not detract from a finish appearance, especially when painted.
	Common Lumber containing defects or blemishes which detract from a finish appearance but which is suitable for general utility and construction purposes.	Lumber suitable for use without waste	No. 1 Common—Sound and tight knotted stock. Size of defects and blemishes limited. May be considered water-tight lumber.
			No. 2 Common—Allows large and coarse defects. May be considered grain-tight lumber.
		Lumber permitting waste.	No. 3 Common—Allows larger and coarser defects than No. 2 and occasional knot holes.
			No. 4 Common—Low-quality lumber admitting the coarsest defects, such as rot and holes.
			No. 5 Common—Must hold together under ordinary handling.

Assets.—In the accounting for the assets for a lumber manufacturing company owning its own timber, some problems are encountered which are peculiar to this industry. These problems occur in connection with the depletion of the standing timber or stumpage, and depreciating the value of sawmills, improvements, and equipment. Other problems occur in the accounting for such amounts as are expended subsequent to the acquisition of the timber lands and prior to production on a normal basis, for the administration, protection, and other carrying charges, or development of the property, or additions to plant and equipment.

Depletion.—Since timber lands are acquired for a consideration and have a definite value, provision must be made for the return to the owners of the capital invested, upon the exhaustion of the holdings. This is accomplished by means of a depletion charge to operations for the lumber cut and manufactured, and a credit to a valuation reserve for depletion, as an offsetting credit to the Stumpage account, to denote the reduction in the available supply on hand. The operation of the reserve for depletion may be better understood by the following example: A lumber company purchased 19,562½ acres of timber lands at a cost of $1,000,000, by a cash payment of $200,000, the balance being secured by bonds. This transaction was shown upon the books of the company as follows:

Timber Lands	$1 000 000	
Cash		$200 000
Bonds Payable		800 000

In order to determine the initial cost of the stumpage and the depletion charge, it is necessary to separate the cost of the land from the cost of the timber. The land was estimated to have a value of $8 per acre, or a total value of $156,500, the balance of the purchase price representing the stumpage. The separation of the cost of the land and of the timber is shown upon the books of the company as follows:

Stumpage	$843 500	
Land	156 500	
Timber Lands		$1 000 000

A timber cruiser was employed to determine the quantity and species of timber on the tract, in order that a valuation might be placed upon the various classes of timber on a thousand-foot log-scale basis. The report of the timber cruiser showed the following number of board feet, log scale, of standing timber by species: white pine, 35,000,000; sugar pine, 7,000,000; and miscellaneous species, 98,000,000.

With the above information, an average depletion charge may be determined for all species, or for each of the species separately, as follows:

Species	Cruiser's Report, Feet	Depletion Charge per M	Total Value of Stumpage
White Pine	35 000 000	$7.500	$262 500.00
Sugar Pine	7 000 000	6.000	42 000.00
Miscellaneous Species	98 000 000	5.500	539 000 00
	140 000 000	$6.025	$843 500.00

It will be noted from the above illustration that the charge for depletion is determined by deducting the value of the land from the cost of the timber lands, and dividing the resultant figure (cost of stumpage) by the number of board feet, log scale, of standing timber, as shown by the timber cruiser's report. To determine the average depletion charge by species, it is necessary to take into consideration: (1) the character and quality of the timber by species, age, size, condition, etc.; (2) the quantity of timber per acre, the total quantity under consideration, and the location of the timber in question with reference to other timber; (3) accessibility of the timber (location with reference to distance from a common carrier, the topography and other features of the ground upon which the timber stands and over which it must be transported in process of exploitation, the probable cost of exploitation, and the climate and state of industrial development of the locality); and (4) the freight rates by common carrier to important markets. As new timber lands are acquired, it will be necessary to recalculate the average depletion unit.

If it is decided to charge depletion of timber on the basis of species, then separate accounts with each kind of timber may be opened on the books of the company in the following manner:

White Pine, Stumpage	$262 500	
Sugar Pine, Stumpage	42 000	
Miscellaneous Species, Stumpage	539 000	
Stumpage		$843 500

The amount of depletion to be charged to operating costs during the accounting period may be determined by the quantity of logs cut in the woods, or by the quantity of logs consumed by the sawmill. The former basis is used when the log inventories fluctuate in quantity, while the latter basis is used when the major portion of the logs is consumed by the mill as cut, and the quantity of logs on hand is small and constant. In either case, the charge for depletion is made (assuming that 14,000,000 feet are cut the first year) as soon as the logs are cut and put into process of manufacture, as follows:

Operating Costs—Timber:		
White Pine	$26 250	
Sugar Pine	4 200	
Miscellaneous Species	53 900	
Reserve for Depletion:		
White Pine		$26 250
Sugar Pine		4 200
Miscellaneous Species		53 900

Theoretically, the Reserve for Depletion for the various species of timber should offset the Stumpage account after all timber has been cut; but in actual practice the reserve will be more or less than the stumpage, depending upon the estimate made by the timber cruiser and the charge made for depletion.

Deferred Charges.—In case a company holds timber property for future operations, all expenditures for administration, protection, and other carrying charges incurred prior to production on a normal basis should be capitalized as deferred charges; but, after such property is on a normal production basis, such expenditures should be treated as current operating expenses. These deferred charges should be spread over and written off according to tho amount of timber cut during the periods of normal production. Assume, for example, that a company paid taxes for several years, amounting to \$70,000, previous to actual production, and that the standing timber amounted to 140,000,000 feet at log scale. If 14,000,000 feet are cut annually for the next ten years, the charge to operating costs for taxes previously capitalized would be \$7,000 per annum, or 50 cents per thousand feet cut, determined as follows:

$$\frac{\$70{,}000.00}{10} = \$7{,}000.00;\ \frac{\$7{,}000.00}{14{,}000} = 50 \text{ cents per thousand feet cut.}$$

Depreciation.—Depreciation of lumber plants is governed principally by the factor of obsolescence, through the exhaustion of the available timber supply rather than by the decline in value resulting from wear and tear. This being the case, a sawmill has only scrap value when the available timber is cut; the total loss due to depreciation (cost price less scrap value) must be prorated either (1) over the life of the sawmill, if the service life of the mill is less than that of the "standing timber," or (2) over the life of the "standing timber," if the mill will outlive the timber tract. In case (1) above, the annual depreciation charge is usually found by the "straight-line" method; and in case (2) above, by the method used in regard to depletion. For instance, assume a sawmill costing \$400,000, estimated scrap value \$50,000, stumpage 350,000,000 feet at log scale, and estimated annual consumption 17,500,000 feet. The depreciation charge would be \$35,000 per annum, or \$2 per thousand feet cut, if the service life of the sawmill is 10 years, determined as follows:

$$\frac{\$400{,}000 - \$50{,}000}{10} = \$35{,}000;\ \frac{\$35{,}000}{17{,}500} = \$2.00 \text{ per thousand feet.}$$

However, if the service life of the sawmill is 25 years, the depreciation charge would be \$1 per thousand feet cut, or \$17,500 per annum, determined as follows:

$$\frac{\$400,000.00 - \$50,000.00}{350,000} = \$1.00;\ 17,500 \text{ feet cut} \times \$1.00 = \$17,500.00$$

After a timber operation has been developed and equipped, and has reached its normal output capacity, the cost of additional minor items of equipment and the cost of replacement of minor items of worn-out and discarded plant and equipment should be charged to current operating expenses, or written off by depreciation.

Liabilities.—Timber bonds are frequently issued in serial form, as this is a convenience for the investor and works out nicely with the operating methods employed by the logging company. The bonds usually provide either that the company shall pay into a sinking fund a certain amount per thousand feet on the logs cut (log scale), or on the board measure produced (lumber scale); or that the company shall pay to a trustee the value of the timber which will be cut, before cutting it. The latter method is very restrictive, and would be employed only with companies whose financial standing is not the best.

Proprietorship Accounts.—The net worth accounts of lumber concerns are the same as those usually found in corporations, and therefore offer no accounting or auditing difficulties.

Balance Sheet.—The balance sheet of a lumber company does not differ from that of any other manufacturing establishment, in character or arrangement of its accounts, except for those accounts which have been previously mentioned.

Operating Costs and Expenses.—The following list will give a general idea of the accounts to be kept by a complete lumber manufacturing enterprise. Each account under "Operating Costs" may be further analyzed as to labor, supplies, and expenses.

Operating Costs

Logging:
- Contract Logging
- Rigging Ahead
- Falling and Bucking
- Yarding and Loading
- Wire Rope
- Depreciation—Logging
- Railroad

Manufacturing:
- Pond or Log Yard
- Sawmill
- Sorting Table
- Dry Kiln
- Yard—Timber Dock
- Yard—Transportation
- Yard—Piling

OPERATING COSTS.—(*Continued*)

Logging:
- Spur Tracks
- Water Haul
- Other Haul
- Booming and Rafting
- Boom Stock Towing
- Depreciation—Transportation
- Salaries and Wages
- Sundry Expenses
- Shut-down Overhead
- Logs Lost
- Stumpage

Manufacturing:
- Yard—Rough Dry Shed
- Yard—Dry Sorting
- Yard—Finished Shed
- Yard—General
- Depreciation
- Salaries and Wages
- Sundry Expenses
- Shut-down Overhead
- Shipping

OPERATING EXPENSES

Selling:
- Advertising
- Salesmen's and Selling Salaries
- Salesmen's Expenses
- Commissions
- Branch Expenses

Administrative:
- Executive Salaries
- Office Salaries
- Stationery, Printing, and Office Supplies
- Rent and Light
- Postage, Telephone, and Telegraph
- Professional Services
- Sundry Expenses
- Fire and Boiler Insurance
- Liability Insurance
- Taxes
- Depreciation—Furniture and Fixtures

Income.—The sources of income of a lumber company will depend upon the extent of its operations, and may consist of sales of various grades of lumber in various stages of manufacture, coproducts, by-products, and land. A considerable amount of revenue is frequently derived from public utilities, such as railroads and lighting and water plants originally installed for the benefit of the mill itself. Any profit made by a commissary or general store operated by a sawmill should not be deducted from the operating costs of the mill, but should be shown as "other income" in the profit and loss statement. It should be noted that all outstanding "tokens" issued by the commissary to employees are a direct liability of the company until redeemed.

Profit and Loss Statement.—The profit and loss statement of a lumber company involves no special problems, unless it is

desired to include average cost statistics in columns to the right of the operating cost figures. The figures used in the cost statistics are usually based on the cost per thousand feet of lumber.

Special Auditing Features.—An audit of a lumber company offers some problems not encountered elsewhere. Among the most difficult are pricing the inventory and determining the reasonableness of deferred charges to operations.

The course of procedure would be as follows:

1. Analyze the income and expense accounts and make such examination of vouchers as may be found necessary, to determine the correctness of the charges and their proper classification.

2. Examine receipts and disbursements sufficiently to satisfy the auditor that the Cash account is substantially correct.

3. Analyze the property accounts, to ascertain whether maintenance expenditures have been capitalized and to determine the proper treatment of depreciation. Also, ascertain whether sales of property have been credited to the Sales account in error.

4. Examine the accounts and notes receivable, to verify the correctness of the amounts charged against income for bad debts.

5. Verify the inventories for the several closing dates, as far as possible. The method of pricing for the several closing periods should be on the same basis. Quantities of lumber can be checked from the yardmen's tally tickets, and a test of total can be made by using the beginning and closing inventories and giving effect to the mill cut and sales. Certificates should be obtained from responsible officials as to the accuracy of the inventory.

6. Care should be taken that all liabilities are taken into account, as far as ascertainable, and that the corresponding charges have been correctly distributed as to years. The Surplus account should be carefully analyzed, particularly in connection with revaluation of timber.

CHAPTER XV

BITUMINOUS COAL MINES

Nature of Business.—The mining of coal belongs to the "extractive" group of industries, due to the location of the product and the methods employed to make it available for marketing. Coal differs from other mined products in the important particular that (except as to grading and screening) it is a finished product when taken from the mine, while ores must be operated upon in order to separate or extract the substance which is the object of the mining operations.

Before a new mine is opened and the "tipple" and other equipment necessary for the production of coal are installed, a definite output of coal per year or day is determined upon. The tipple and the entire plant are then designed for this desired tonnage.

The first operation is to open and lay out the coal body. This is commonly known as "development work." It should be handled under the direction of a competent mining engineer, upon whose skill the successful working of the property depends. The engineer first chooses the best location for the mine, based upon a preliminary examination of the character of the strata, by means of borings or outcrop prospecting. Borings are made for the purpose of determining the number and nature of the coal seams, in new fields, or the position or extent of the particular seam or seams which it is proposed to work in extensions of known coal fields.

The next operation is to dig the shaft or drive the entry giving access to the coal, then to provide and place suitable surface and underground equipment and machinery, so that the coal may be mined, hauled to the shaft, hoisted to the top, or hauled to the mine mouth, and loaded for shipment.

Coal mines, in this country, can be opened in a more regular way than metalliferous mines, because the coal beds lay flat, or dip at low angles. Most coal seams that are worked extend for a considerable distance and are only a few feet thick. There

are, in practice, two systems of mining coal: first, the "pillar and room," which is most generally used in the United States; second, the "long-wall" system. Coal is mined by the first system by taking out varying portions of the coal from the mine workings, as the work advances, and the remainder in retreating back toward the opening. Coal is mined by the second system by taking out all the coal in a long face as the work advances from the mine opening, the roadways and air passages being protected by "packs," or walls. The former system is best suited for thick seams with rock roofs, while the latter system is best suited for thin coal seams with weak roofs.

The coal is broken from the face of the seam by undercutting it with picks, or by machines specially devised for the purpose, and then inserting a charge of powder sufficient to bring down the coal. The miners, or their helpers, then load the coal into mine cars, which are hauled to the main haulage roads by mules or "gathering" locomotives. At this point, the cars from the various gangways, or entries, are usually made up into trains, and hauled to the shaft bottom, or other entrance of the mine, by wire rope and hoisting engine, or by compressed-air locomotive, or electric locomotive. The coal, upon arrival at the entrance of the mine, is transported to the tipple, where it is weighed in the mine car, or dumped, by means of mechanical devices, into hopper scales, and then, after being weighed, into a chute, from which it slides into the railroad car below. This simple method of loading is used at tipples not equipped with screens or other preparation machinery. Most coal used for commercial purposes, however, is graded as to size, and this process of grading is known as "screening." Bituminous coal is screened into various sizes, commonly known as "lump," "egg," "nut," "pea," and "slack." Coal not screened into sizes is called "mine-run," or "run-of-mine" coal.

In bituminous coal, the slate is principally at the top and bottom of the vein, very little being mixed with the product as mined. In some cases, however, it is washed to remove sulphur compounds and slate. While a considerable quantity of coal is, of course, washed, it is small in comparison with the total produced, and is confined to a comparatively few fields, mainly Illinois (for certain sizes) and Alabama. Most of the eastern coal passes without washing, except for the making of coke, where the washing is for the purpose of eliminating the sulphur

compounds, which have a deleterious effect when used for manufacturing iron or steel. This washing process is accomplished by crushing the coal to a small size, which breaks the slate and sulphur compounds from it. The mixture is then agitated in a "shaker," through which a current of water passes; the coal, being lighter, washes over the top, while the slate and sulphur compounds pass out through the bottom. The "thickener" recovers very fine coal, which would not otherwise be reclaimed, from suspension in the water.

A necessary part of mining operations is the housing of employees. This may necessitate the construction of a mining town, which usually has many of the conveniences of a city.

Farming operations are sometimes carried on, in order that crops of hay and grain may be raised to feed the live stock employed in mining operations. Large quantities of timber are also used in mining operations, and it is not unusual for the company to own or lease large tracts of timber, so as to be assured of a sufficient supply at a reasonable cost. A coking plant may also be maintained, and part of the product made into coke.

Organization.—The organization of a company engaged in the mining of bituminous coal may be logically divided into three functional groups, or divisions, as follows: (1) administration, (2) production, and (3) sales. The administrative division exercises general supervision over all activities and determines the company's financial policies. This division is usually composed of the board of directors, president, secretary, treasurer, etc. The production division is responsible for the production of the coal, which includes all mining operations. This division constitutes the major portion of the organization, as far as numbers are concerned, and may be divided into several natural subdivisions, according to the classes of work done in and around the mine. The general manager exercises general supervision over this division; he is assisted by the mining engineer, accountant, manager of mines, various superintendents and mine foremen, together with the mine staff. The selling division, as the name indicates, handles all matters pertaining to the sale of the product. It is the duty of the sales manager to dispose of the product at a profit which will yield a good return on the investment, and to exercise general supervision over the sales force.

Generally speaking, in corporations of medium size, the organization will resemble the one shown in Fig. 49. It will vary, of course, according to the size and form of organization. In some instances, the secretary and treasurer are responsible also to the general manager, and the mine clerks and weighmasters are also responsible directly to the general manager rather than to the local superintendent; in some cases, mine clerks are directly responsible to the accounting department.

Legal Status.—The laws relating to the mining of bituminous coal differ in nearly every state. Therefore, it is impossible to

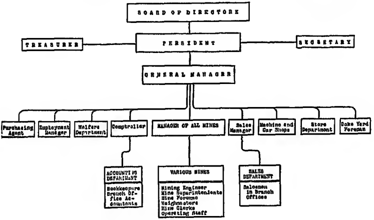


FIG. 49.—Organization chart—bituminous coal mine.

cover all the variations in a general statement. Nearly every state, however, has enacted laws which make it necessary for coal-mining companies to provide means for securing the health and safety of persons employed in the mines. Perhaps one of the most important laws relating to the safety of employees is that which provides ample means of ventilation—for the circulation of air through the various entries and working places of the mine, to carry off and render harmless the noxious or dangerous gases generated therein. The laws also require the use of locked safety lamps in places where explosive gas is generated, or where a sudden inflow of this gas is likely to occur.

Accounting Books and Records.—The financial records required in the various transactions of a coal mining company, as shown in the chart of accounting books and records (Fig. 50), are similar to those described in previous chapters for other

enterprises, with the exception of the payroll and sales registers. The nature and functions of these two registers will be discussed later under the topics to which they relate.

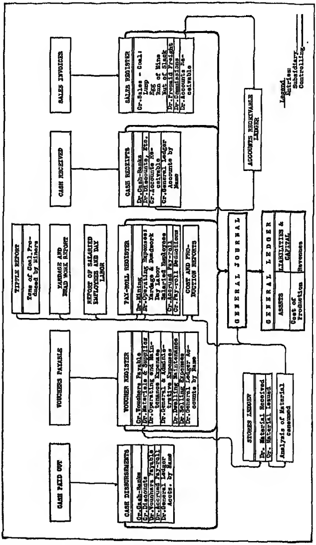


FIG. 50.—Chart of accounting books and records—bituminous coal mine.

Recording and Determining Production Costs.—The coal-mining industry affords a typical example of the process method of cost finding, in that labor, material, and overhead costs are

charged to definite operations; and, when the production, or total quantity of coal produced, is known, the unit cost per ton is determined. The unit of cost in the bituminous coal industry is the net ton of coal mined. In some coal fields costs are still figured on the basis of the gross or long ton, generally because wage scales are negotiated on that basis.

To determine the cost of production and the quantity of coal produced, it is necessary to utilize various subsidiary cost reports and records to report the cost of labor, materials, and supplies expended in the extraction of the coal. These subsidiary cost reports and records analyze and classify the various expenditures in accordance with the natural subdivisions of the work that has to be done in and about the mine, so that the monthly cost statement may be prepared, which permits critical study of the results of the month's operations.

Mine Tonnage Records.—The miners, who are directly responsible for the production of coal, are paid on the basis of the number of tons of coal actually mined; and for work in narrow and unusual places are also paid for "yardage" and "dead" work, terms which will be discussed later. This is the only item of strictly productive labor. The number of tons produced daily by each miner is recorded by the weighmaster located at the tipple, on a form called a tipple sheet. (The tipple is the structure at the mouth of the mine to which the coal is hoisted and from which it is dumped into railroad cars after being weighed.)

A metallic pit check, bearing the miner's number, is attached to each car of coal which he produces. By means of the pit check, the weighmaster is able to determine which miner is to be credited with each car of coal produced. The tipple sheet is divided into numerous columns for recording the tonnage produced by each miner. Instead of the miners' names being shown at the tops of the various columns, the numbers on their pit checks are shown. The total of each column at the close of each day will then indicate the number of tons produced by each individual miner. The tipple sheets are summarized each day and turned over to the payroll clerk for recording on the payroll register. It should be noted that coal produced by using a pick carries a different rate of compensation from that produced by a machine, necessitating a division on the tipple sheet for the two kinds of work. This is accomplished by assigning different series of numbers for each kind of work.

The average cost per ton of coal mined will vary with the thickness of the coal seam, the rate for which is reflected in the wage scale agreement, and the relative proportion of the total coal mined by pick and by machine, respectively. In the latter case, the coal is generally "undercut" by one set of operatives, called "cutters," and loaded by another set of employees, designated as "loaders." In the case of pick mining, all of this service is performed by the same man.

The Yardage and Dead-work Report.—The term "yardage" is used to describe work in narrow places. For this class of work, the miner is paid extra compensation in addition to his tonnage credit, because he cannot produce as much tonnage as a miner working in a room or wide place. The term "dead work" is used to describe work which does not contribute directly to the production of coal. This work is made necessary, largely, by physical conditions, such as room necks, break-throughs, allowances for working in wet places, dumping and storing "gob," cleaning up fall and retimbering, handling "squeezes" and mine fires, etc. In order that each miner may receive proper credit for such work, the mine foreman reports this information to the payroll clerk on the yardage and dead-work report. This report is divided into numerous vertical columns, the headings of which are used to describe the various classes of work coming under "yardage" and "dead work," while the horizontal lines are numbered according to the miners' pit checks.

The Day-labor Record.—All day labor is recorded in time books, classified according to the nature of the work performed. Under each classification of labor is shown the names of employees, rate per day, hours worked daily, and the total amount of earnings for the period. The classification of day labor is highly important, as it facilitates the compilation of cost reports or payroll summaries, both of which will be discussed later.

The Payroll Register.—The earnings of employees as shown by the various labor reports and time rolls, previously described, are entered daily on the payroll register and analyzed according to the classes of work performed. In addition to the above information, it is also necessary to record on the payroll register the various deductions to be made from the amount earned by each employee for services and merchandise purchased by them, from the company, on credit.

At the close of each month, the totals of the various columns are posted, either direct or by means of journal entries, to the general ledger. If the latter method is used, the monthly journal entries would appear as follows:

Mining		$......	
Operating Expenses:			
Day Labor	$......		
Yardage Costs	......		
Miscellaneous Labor	......	......	
Accrued Payroll			$......
To record the total earnings of employees in and about the mines.			
Accrued Payroll		$......	
Mercantile Operations			$......
Dwelling Rentals			......
Employees' Overdrafts			......
Operating Revenues:			
Heat, Light, and Power	$......		
Smithing	......		......
To record deductions made from the earnings of employees.			

The Payroll Analysis.—In order that the management may be provided with sufficient information with which to study the details of miners' earnings, it is highly important that a payroll analysis be prepared, showing the analysis of all labor by operations. The form of payroll analysis (Fig. 51) follows in exact order the divisions of labor charges recommended by the Cost Accounting Committee of the National Coal Association. The information shown by this form is then used to prepare the labor data required in the preparation of the monthly cost reports, which are to be discussed later.

The data required to prepare the payroll analysis are taken from the labor reports and time rolls previously discussed. The "coal" column of the payroll register will furnish the data with respect to "hand" and "machine" mining. The yardage and dead-work reports are summarized and analyzed by labor operations to furnish the details of dead work. Where the time rolls, used to report day labor, classify earnings according to operating expense accounts, postings can be made direct to the payroll analysis without further analysis.

NOTE.—Numbers in first column correspond with those on cost sheet page 23 of report as revised.

Account No.	Class of Labor	Item	Sub-Total	Amount
	Miners ....tons at.			
	Helpers			
	Shot firers			
I	a Hand mining (Sub-total)			
	Undercutting ....tons at.			
	Moving machines for cutters			
	b Undercutting (Sub-total)			
	Machine boss			
	Electricians and helpers			
	Blacksmith and helper			
	Sharpening picks			
	c Mining machine repairs and maintenance			
	d Pit car loading..........tons at.			
II	e Machine mining (Sub-total), b, c and d.			
	Company coal, tons only			
2	Mining, Total a and a_1 ....pay roll tons produced			
	Pit posts and caps			
	Teamster hauling same			
	Unloading from railroad cars			
	Sending timber into mine			
3	Timbering			
	Entry yardage			
	Air courses			
	Cross cuts			
	Break throughs			
	Room necks			
	a Narrow work (sub-total)			
	Clay veins			
	Spars			
	Horsebacks			
	Bone			
	Shooting rock			
	Lifting bottom			
	Taking down top			
	Stowing and dumping gob			
	Cleaning up falls and retimbering			
	Handling squeezes			
	Mine fires			
	b (Sub-total)			
4	Dead Work, Total a and b			
	Trackmen or roadmen (advance work)			
	Helpers (advance work)			
5	Tracklaying			
	Pumpers			
	Pipemen			
	Water bailers			
	Water haulers			
	Digging drains and sumps			
	Electricians			
	Blacksmiths			
	Other labor			
6	Drainage			

Account No.	Class of Labor	Item	Sub-Total	Amount
	Attending fan			
	Brattice man			
	Masons and helpers			
	Sprinkling			
	Fire bosses			
	Cleaning air courses			
	Safety lamp attendant			
	Repairs to fan			
	Repairs to other ventilating equipment			
	Repairs to safety lamps			
7	Ventilation			
	Hoisting or haulage engines (repairs)			
	Labor of other mechanics			
	a Repairs to haulage engines (sub-total)			
	Electrician			
	Motorman			
	Blacksmith			
	Labor of other mechanics			
	b Repairs and maintenance of motors			
	Carpenters			
	Blacksmiths			
	Other labor			
	c Repairs and maintenance of mine cars			
	Stable boss			
	Helpers			
	Harness repairs			
	Shoeing			
	d Care and maintenance of live stock			
I	Care and maintenance of equipment, totals, b, c & d			
	Boss driver			
	Drivers			
	Brakemen			
	Motormen			
	Hoisting engineer (shaft)			
	Haulage engineer (drift or slope)			
	Trip riders			
	Couplers trappers			
	Greasers			
	Spraggers			
	Switchmen			
	Drying sand for locomotives			
	Bottom cagers			
II	Conducting transportation			
	Roadmen—Repairing and cleaning			
	Helpers			
III	Maintenance of way (Sub-total)			
8	Haulage and Hoisting, total			
	Weighmaster			
	Dumpers			
	Pushers			
	Top cagers			
9	Dumping and Tallying			

Account No.	Class of Labor	Item	Sub-Total	Amount
	Picking table labor			
	Loading boom labor			
	Other preparation labor			
10	Preparation			
	Yard boss			
	Trimmers			
	Checkers			
	Car Cleaners			
	Brakemen			
	Maintaining and operating mine tracks			
11	Railroad Car Loading and Yard Expense			
	Firemen			
	Engineers			
	Cleaning boilers			
	Handling ashes			
	a Generating power (Sub-total)			
	Bricklayers and helpers			
	Masons and helpers			
	Carpenters			
	Electricians			
	Boilermaker			
	Other labor			
	b Equipment repairs (Sub-total)			
	Sub-station attendants			
	Electricians			
	c Purchased power			
12	Power, total a, b and c			
	Carpenters			
	Painters			
	Other labor			
13	Repairs to Buildings and Structures			
	Clerks			
	Janitor			
14	Mine Office			
	Superintendent			
	Assistant superintendent			
	Mine foreman			
	Assistant mine foreman			
15	Superintendence			
16	Engineering			
	Sending supplies to mine			
	Warehouse			
	Teamsters			
	Unloading supplies			
	a General outside labor			
	b Welfare work at mine			
17	Sundries, total a, b, etc			
21	Total Mine Operating Expense			

FIG. 51.—Distribution of mine labor.

Supplies.—The general rule to be followed in accounting for supplies is to capitalize any major items which will materially increase production or decrease costs. All other items of minor importance should be treated as items of operating expense.

The material requisitions issued each day for supplies are tabulated and analyzed under the same general headings as are shown on the monthly cost statement and payroll analysis. At the close of the month, the daily reports of supplies issued are summarized and the totals journalized for posting to the general ledger as follows:

Assets (by classes)	$......	
Operating Expense	......	
Materials and Supplies		$......

Power-house Supplies.—One of the mooted questions in coal mine accounting is the question of accounting for coal used by the operator for generating power. There seems to be some difference of opinion as to whether or not coal consumed by the power plant should be charged to the cost of production, and, if so, how the cost of such fuel should be determined.

The proponents for the exclusion from operating expense of fuel consumed in generating power hold that a separate charge would be a duplication, since the cost of production of such coal is already included under the several headings of labor, supplies, and certain fixed charges. The consensus of opinion among the bituminous coal operators is, however, that coal burned under the boilers should be considered a proper element of cost, and charged according to the generally accepted method of pricing inventories, namely, at cost or market, whichever is lower. The latter method would appear to be the more logical way of treating this item, since coal purchased from some other operator for this purpose would certainly be considered a proper element of cost.

Royalties.—Royalties constitute the amount paid by the coal operator to the landlord, in return for the privilege of mining coal. In other words, coal property is leased to the operator on an agreement that the landlord will receive, in return for this concession, a certain royalty fee specified in the lease, for each ton of coal mined.

The method of accounting and the amount to be paid the landlord for royalties will depend upon the conditions specified in the royalty contract with respect to the total tonnage mined

in each period. Royalty contracts based on the actual tonnage mined during the periods may have *no minimum tonnage limit;* or may have a minimum tonnage limit and *deny the right of recovery;* or may have a minimum tonnage limit and *grant the right of recovery.* For example, assume that a coal operator has leased certain coal property, and has mined 80,000 and 110,000 tons of coal in the first and second years, respectively. If the royalty contract specified that royalties were to be paid the landlord at the rate of 20 cents per ton, without a minimum tonnage limit being stated, on which royalties were to be paid each year, the journal entries affecting royalties for each respective year would have been as follows:

First Year:		
Royalties—Current [80 000 tons × \$0.20 (actual tonnage times rate)]	\$16 000	
Vouchers Payable (amount due landlord)		\$16 000
Second Year:		
Royalties—Current [110 000 tons × \$0.20 (actual tonnage times rate)]	22 000	
Vouchers Payable (amount due landlord)		22 000

If the royalty contract had specified that royalties were payable to the landlord on the basis of a "minimum limit" of 100,000 tons in any one year, regardless of whether or not an amount of tonnage is mined sufficient to earn the minimum, but the "right to recover" the amount paid for royalties on tonnage which falls short of the minimum is *denied* the coal operator, the journal entries affecting royalties would be as follows:

First Year:		
Royalties—Current [100 000 tons × \$0.20 (minimum tonnage times rate)]	\$20 000	
Vouchers Payable (amount due landlord)		\$20 000
Second Year:		
Royalties—Current [110 000 tons × \$0.20 (actual tonnage times rate)]	22 000	
Vouchers Payable (amount due landlord)		22 000

It will be noted that, by this form of royalty contract, the coal operator was required to pay the landlord royalties on 20,000 tons in excess of the actual tonnage produced for the first year, because the "minimum" tonnage was not reached.

If the "right to recover" the amount paid for royalties on tonnage which falls short of the minimum specified in the royalty

contract (100,000 tons) is *granted* the coal operator, the journal entries affecting royalties would be as follows:

First Year:		
Royalties—Current [80 000 tons × \$0.20 (actual tonnage times rate)]	\$16 000	
Royalty Advances [20 000 tons × \$0.20 (excess of minimum over actual tonnage times rate)]	4 000	
Vouchers Payable (amount due landlord)		\$20 000
Second Year:		
Royalties—Current [110 000 tons × \$0.20 (actual tonnage times rate)]	22 000	
Royalty advances [10 000 tons × \$0.20 (excess of actual over minimum tonnage times rate)], or [balance in Royalty Advances account, whichever is lower]		2 000
Vouchers Payable [amount due landlord, (actual tonnage times rate less balance in Royalty Advances account, or minimum tonnage times rate, whichever is higher)]		20 000

Some leases specify a time limitation in which royalty advances may be recovered. When operating under such a lease, it may happen that a portion or all of the asset account, Royalty Advances, will be lost by time limitations or exhaustion of the mineral resources, making it necessary to reduce this account, month by month, by crediting Royalty Advances and charging costs (Royalties), in addition to the regular monthly estimate based on current production.

Depletion of Mineral.—Coal lands purchased for the purpose of mining operations have two aspects: first, the value of the unmined coal; and, second, the residual value of the surface land, after all coal which can be profitably recovered has been extracted. Therefore, with the constant extraction of coal from the land, the original investment of the coal company in its property steadily decreases. This loss in value of the original investment, due to depleting the mineral resources through mining operations, is taken care of by a charge to Production Costs (Depletion), with a corresponding credit to Reserve for Depletion, in order that the full value of the coal property purchased, less the estimated value of the surface land, may be returned to the owners. Considered as cost elements, royalties and depletion both are amounts paid for the coal mined. The former, however, is recorded by an increase in a liability and the latter by a decrease in an asset.

At the beginning of a coal-mining operation, a competent engineer should be employed to make a careful estimate of the number of tons of coal which it is commercially possible to extract from the coal tract allocated to any certain series of operations. The number of tons of coal in the tract estimated by the engineer, divided into the cost of the mineral in the tract, gives a rate per ton, which, multiplied each month by the number of tons of coal mined, is the measure of monthly depletion to be charged to costs and credited to the Depletion Reserve. The computation of the depletion sustained rests upon the following algebraic formula:

$$\frac{\text{Value of coal tract} - \text{Estimated value of surface land}}{\text{Tonnage ultimately recoverable}} \times \text{Tonnage recovered} = \text{Depletion sustained.}$$

If coal lands purchased prior to March 1, 1913, are revalued as of that date (as allowed by the Bureau of Internal Revenue), or if revalued since that date, because of errors in estimating the tonnage recoverable or new discoveries, either of which revaluations exceeds the March 1, 1913 valuation, the amount of the resultant appreciation should be credited to a special surplus account designated "Surplus from Revaluation," and a new asset account of equal amount should be established, called "Property Revaluation." The new asset account will then be depleted or amortized, month by month, concurrently with the item representing the original mineral cost. For example, assume that a mining property was revalued as of March 1, 1913, resulting in an appreciation, or increased value over the original cost of the property, amounting to $200,000, and that the exhaustion of mineral was at the rate of $5,000 monthly, $3,000 being the portion of the original value and $2,000 the portion of the appreciation. The journal entries shown below illustrate the method of accounting to be followed:

Property Revaluation March 1, 1913	$200 000	
Surplus from Revaluation at March 1, 1913		$200 000
To record the appreciation resulting from revaluation of property.		
Operating Expense—Depletion	5 000	
Property Revaluation		2 000
Reserve for Depletion		3 000
To record the depletion of mineral resulting from mining operations.		

At the close of the year, it is apparent that operating expense has borne an additional charge during the twelve months for depletion due to revaluation, thereby reducing the earned surplus, making it necessary to transfer an equal amount from Surplus from Revaluation to Earned Surplus, as follows:

Surplus from Revaluation at March 1, 1913	$24 000	
Earned Surplus		$24 000
To record the amount transferred from Surplus from Revaluation to Earned Surplus for the current year.		

Depreciation.—Depreciation and depletion are not synonymous. The former relates to the reduction in value of assets through use, the passing of time, decay, or obsolescence; while the latter, as applied to the mining industry, relates to the exhaustion of recoverable mineral deposits. However, the fact that a mine is subject to depletion frequently has a vital effect on the method to be followed in computing depreciation for plant and equipment used in mining operations. For example, when all the coal of a mine which can be profitably recovered has been extracted, the development is valueless, the improvements nearly so, and the machinery of a comparatively low scrap value. This being the case, the method to be followed in depreciating plant and equipment used in mining operations will depend upon whether such assets have a longer or shorter life than the coal deposits. In other words, the measure of depreciation for plant and equipment having a longer life than the coal deposits commercially recoverable is the unit of extraction, while such portions of the plant and equipment having shorter life depreciate at their normal rates. The method of computing the depreciation rate based on the unit of extraction is found by subtracting from the cost of all mining equipment its estimated scrap or residual value and dividing this amount by the total number of tons of coal commercially recoverable. This rate per ton, multiplied by the number of tons of coal extracted monthly, is the measure of depreciation which should be charged to costs.

Other Expense Accounts.—The items, General and Liability Insurance and Taxes, shown in the cost report (Fig. 52*A*) are self-explanatory. The various items classified under General Expense and Selling Expense (Fig. 52*B*) relate to the expenses

incurred in connection with the administration of the company and the sale of coal, and require no further comment.

Assets.—*Distinction between Capital and Operating Expenditures.*—The National Coal Association Committee report says,

Sheet 1

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For Name of Company

_____________________________19___

Report of Cost, Income and Tonnage

For Month of__________________

COST

Line No.	ACCOUNT	CURRENT MONTH				YEAR TO DATE	
		LABOR	SUPPLIES	TOTAL		TOTAL	
		Amount	Amount	Amount	Per Ton	Amount	Per Ton
1.	Mine						
1	Operating Expenses						
2	Mining						
3	Timbering						
4	Deadwork						
5	Track Laying						
6	Drainage						
7	Ventilation						
8	Haulage and Hoisting						
9	Dumping and Tallying						
10	Preparation						
11	Railroad Car Loading and Yard Expense						
12	Power						
13	Repairs to Buildings and Permanent Structures						
14	Mine Office						
15	Superintendence						
16	Engineering						
17	Sundries						
18	....						
19	Total						
20	Additions or deductions account of sale of explosives, etc.						
21	Total Mine Operating Expense						
22	Other Operating Charges						
23	Royalty						
24	Depletion						
25	Depreciation						
26	Insurance—General						
27	Insurance—Liability or Compensation						
28	Taxes (exclude Income and War Profits)						
29	....						
30	....						
31	Total Other Operating Charges						
32	Total Operating (add lines 21 and 31)						

FIG. 52*A*.—Report of cost, income and tonnage. Cost.

concerning the distinction to be observed between capital and operating expenditures:

The drawing of distinctions between capital and operating expenditures, in the accounting involved in permanent enterprises, is a favorite

field for discussion among accountants, but in the case of coal mining or other wasting enterprises experience teaches that the field for discussion, if indeed there be any, is extremely limited.

After a coal mine has been developed and equipped to its contemplated or possible capacity, it is a constant consumer of material and

Sheet 3

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For Name of Company

Report of Cost, Income and Tonnage

For Month of________________

COST

Line No.	ACCOUNT	CURRENT MONTH				YEAR TO DATE	
		LABOR	SUPPLIES	TOTAL		TOTAL	
		Amount	Amount	Amount	Per Ton	Amount	Per Ton
33	General Expense..................						
34	Officers' Salaries and Expenses..						
35	Other Salaries..................						
36	Rent and Miscellaneous Office Expense..................						
37	Legal Expense..................						
38	....						
39	....						
40	....						
41	*Total General Expense.......*						
42	Total Operating and General Expense (add lines 32 and 41)						
43	Selling Expense..............						
44	Officers' Salaries and Expenses..						
45	Salesmen's Salaries and Expenses						
46	*Other Office Salaries...........*						
47	Rent and Other Office Expense..						
48	Advertising						
49	Commissions						
50	Miscellaneous....................						
51	....						
52	....						
53							
54	Total Selling Expense........						
55	Total Operating, General and Selling Expense (add 42 & 53)						
	....						
	....						
	....						

FIG. 52B.—Report of cost, income and tonnage. Cost.

supplies and equipment, which, though nominally of a durable nature, are subject to destructive wear and tear, by reason of the uses to which they are put, and all these appliances must be kept in repair to do their work or the output cannot be maintained.

Mules and pit cars are constantly worn out and have to be replaced, and as the working faces advance with the exhaustion of the coal, the length of haul, the consequent time of circulation of pit cars between the working face and dump increases, more motors, mules, and pit cars have to be supplied to maintain the output, and the more motors, mules, and pit cars in the mine the greater expense for replacements and repairs.

Also, with the advance of workings, more rails have to be laid and more copper wire or other conductors put up to carry power to the working faces to maintain the output. They remain in place until the mine is exhausted and when they are recovered have but little net scrap value. In fact, any net salvage is relatively very small.

The fact that these expenses are continually recurrent and practically a fixed factor in the cost of production per ton from year to year proves that they constitute an operating rather than a capitalizable expense.

This being so, it makes no difference to taxable income whether they are charged immediately to operating expense or written off by deductions representing depreciation allowances which would have to be readjusted and compounded from year to year. As a practical matter, it is better to dispose of such expense by direct charge to operating, expense rather than taken care of by vexatious refinements of accounting, that would be necessary if these items be capitalized and "depreciated."

That this proposition is now acceptable to the Department is substantiated by Regulations 45, Revenue Law of 1918:

"Art. 222. *Charges to Capital and to Expense in the Case of Mines.*—In the case of mining operations all expenditures for plant, equipment, development, rent, and royalty prior to production, and thereafter all major items of plant and equipment, shall be charged to capital account for purposes of depletion and depreciation. After a mine has been developed and equipped to its normal and regular output capacity, however, the cost of additional minor items of equipment and plant, including mules, motors, mine cars, trackage, cables, trolley wire, fans, small tools, etc., necessary to maintain the normal output because of increased length of haul or depth of working consequent on the extraction of mineral and the cost of replacements of these and similar minor items of worn-out and discarded plant and equipment, may be charged to current expense of operations, unless the taxpayer elects to write off such expenditures through charges for depreciation."

Art. 222, of Regulations 45, as first issued, which is reproduced in the paragraph immediately preceding, was later altered by the Bureau of Internal Revenue to read as follows:

"Art. 222. *Allowable Capital Additions in Case of Mines.*—(*a*) All expenditures for development, rent, and royalty in excess of receipts from minerals sold shall be charged to capital account recoverable through depletion, while the mine is in the development stage. Thereafter any development which adds value to the mineral deposit beyond the current year shall be carried as a deferred charge and apportioned and deducted as operating expense in the years to which it is applicable.

"(*b*) All expenditures for plant and equipment shall be charged to capital account recoverable through depreciation, while the mine is in the development stage. Thereafter the cost of major items of plant and equipment shall be capitalized but the cost of minor items of equipment and plant, necessary to maintain the normal output, and the cost of replacement may be charged to current expense of operation."

Mine Development.—When the development of the mine has progressed sufficiently to produce the estimated tonnage recoverable and the necessary operating machinery has been installed, all charges to the capital account, Development, should cease. Thereafter, all items of equipment which do not materially and permanently increase production or decrease costs should be charged to operating expense. This method is in harmony with the Treasury Department's regulations reproduced in the preceding paragraphs. The amortization of development costs which are capitalized should be handled in accordance with the methods described under the section dealing with Depreciation.

Liabilities and Net Worth.—The liability and net worth accounts of coal-mining companies are similar to those of other industries of like character previously treated, and, therefore, require no further comment.

Income.—Accounting for the disposition and sale of the tonnage produced has some peculiarities which are not usually found in other lines of business. In other industries, it is possible to bill customers immediately upon shipment of the product from the factory. Coal, however, is sold upon the basis of weights ascertained by railroad weighmasters, on track scales nearest the point of shipment. Therefore, the customers cannot be billed until the railroad weights are received by the company. The railroad track scales may be located in close proximity to the mine, in which case the weights of the cars shipped are obtained with reasonable promptness and the coal can then be invoiced during the current month. In the case of coal consigned to tidewater ports located several hundred miles from the

mine, the coal is in transit a week or more, and the weights are usually not ascertained until the coal is dumped from the cars into the vessels. For this reason, in some sections of the country, it is impractical, if not impossible, to complete tonnage statistics until ten days or two weeks have elapsed, after the close of the current month. In some districts, even after the lapse of that amount of time, when a reasonable portion of the weights have been reported by the railroad company, it is necessary to estimate the tonnage contained in a large number of cars held at the mine, in transit, or at tidewater points awaiting dumping, representing sometimes as much as one-fourth of the month's production, and to carry these estimates to Inventory—Coal in Transit and Inventory—Coal on Hand.

The above-mentioned inventories, estimated in the previous month, should be adjusted in the current or subsequent months, when the actual weights are ascertained, as shown by the following journal entries:

Inventory—Coal in Transit	$......	
Coal Sales		$.....
To record estimated weight of coal in transit at end of month on which railroad weights have not been received, valued at the price which will be received for it when invoiced to customers.		
Coal Sales	......	
Inventory—Coal in Transit		......
Entry made at beginning of subsequent month, to reverse the inventory at end of previous month shown in the first journal entry.		

The accounting for coal held unconsigned at the mine or part loads, which are charged to Inventory—Coal on Hand, will be handled in exactly the same manner as shown above for Inventory—Coal in Transit, except that it will be valued at the average cost of production or at the market price, whichever is lower.

Tonnage and Sales Statistics.—To account for the disposition of the tonnage produced, it is necessary to add to the sales (adjusted, as shown immediately above), the coal used for mine fuel, sold locally or delivered to locomotives for fuel. This is accomplished in the following manner:

	Tons
1. Actual weights of cars reported by railroad and invoiced to purchasers during current month, which were shipped during the *previous* month	......
Less:	
2. Estimated weight of coal held unconsigned (in transit or at destination) which had not been weighed by railroad, or invoiced to purchasers, at close of the *preceding* month. (It should be noted that the actual weight of this inventory is shown under item (1) above.)	...
3 Net difference (may be either positive or negative)	. ....
4. Estimated weight of coal hold unconsigned (in transit or at destination) which has not been weighed by railroads or invoiced to purchasers during *current* month. (It should be noted that this entry will be reversed in the *subsequent* month, in the same manner shown in item (1) above.)	......
5. Actual weights of railroad cars reported by railroads on shipments made during *current* month and invoiced to purchasers	......
6. Coal sold locally at mine during *current* month	......
7. Coal used by company's power plants during *current* month	......
Total production for current month	......

Shipping Record.—All shipments of coal are entered on the shipping record, which is devised so as to record the following information:

1. Consignees and for whose accounts.
2. Destination.
3. Routing.
4. Description of railroad cars.
5. Grades of coal.
6. Mine weight.
7. Railroad weights:
   (*a*) Lump.
   (*b*) Egg.
   (*c*) Mine-run.
   (*d*) Slack.
8. Amount prepaid freight.
9. Invoice number.

The data presented by the shipping record enable the accounting department to determine the total mine weight of tonnage shipped on which railroad weights have not been received during the current month, which information is used to compute the amount chargeable to Inventory—Coal in Transit. From the

data shown under "railroad weights," the accounting department prepares the invoices sent to the various customers.

Sheet 3

For Name of Company

Report of Cost, Income and Tonnage

For Month of__________

INCOME

Line No.		Tons		Current Month		Year to Date	
		Current Mo.	Year to Date.	Amount	Per Ton	Amount	Per Ton
56	Coal Sales						
57	Sales Per Railroad Weights						
58	Delivered to Locomotives						
59	Local Sales at Mines						
60	Coal Coked						
61	Raw Coal to Washery						
62	To Power Plant						
63	To Dwellings						
64	Adjustment of Inventories						
65	Gross Sales (produced coal)						
66	Deductions						
67	Less Freight Prepaid						
68	Less Allowances and Adjustments						
69							
70							
71	Total Deductions						
72	Net for Coal at Mine						
73	Less Total Operating Charges (Line 55)						
74	Margin on Coal						
75	Other Income						
76	Profit or Loss, Explosives } See optional deduction from operating expenses line 20						
77	Smithing						
78	Heat, Light and Power						
79	Dwellings and Farms						
80	Stores						
81	Profit or Loss, Washer Operations						
82	Profit or Loss, Coke Plant						
83	Floating Equipment						
84	Railroad Euipment						
85	Purchased Coal						
86							
87							
88	Total Miscellaneous Income						
89	Gross Income. (Add lines 74 and 88)						
90	Charges to Income						
91	Interest						
92	Income and War Excess Profits Tax						
93	Contingent Reserve						
94	Maintenance Reserve						
95							
96							
97	Total Charges to Income						
98	Net Income (Subtract 97 from 89)						

FIG. 53*A*.—Report of cost, income and tonnage. Income.

Sales Register.—The duplicate copies of the customer's invoices are posted to the sales register and analyzed under the various classes of coal. At the close of the month this record is summarized, and provides the medium for crediting the controlling

account, Sales of Coal, and charging the controlling account, Accounts Receivable, with all shipments of coal invoiced to customers.

Sheet 4

For Name of Company

Report of Cost, Income and Tonnage For Month of______

Tonnage Statement—Net Tons of 2000 Pounds

(Report part tons as decimals)

CURRENT MONTH

Line No.	Disposition Made of Coal	Prepared	Mine Run	Screenings	Total
101	Invoiced to Customers—				
102	Sales per Railroad Weights..........				
103	Delivered to Locomotives.............				
104	Local Sales at Mines.................				
105	Departmental Transfers—				
106	Coal Coked...........................				
107	Raw Coal to Washery..................				
108	To Power Plant.......................				
109	To Dwellings				
110	Sub-total............................				
111	Add Estimated Inventory—Coal on Hand and Rolling Last of this Month......				
113	Total.........................				
114	Deduct Estimated Inventory—Coal on Hand and Rolling First of Month....				
116	Total Production (Divisor for Cost)..				

THIS YEAR TO DATE

Line No.	Disposition Made of Coal	Prepared	Mine Run	Screenings	Total
101	Invoiced to Customers—				
102	Sales per Railroad Weights..........				
103	Delivered to Locomotives.............				
104	Local Sales at Mines.................				
105	Departmental Transfers—				
106	Coal Coked...........................				
107	Raw Coal to Washery..................				
108	To Power Plant.......................				
109	To Dwellings				
110	Sub-total............................				
111	Add Estimated Inventory—Coal on Hand and Rolling Last of this Month......				
113	Total.........................				
114	Deduct Estimated Inventory—Coal on Hand and Rolling First of Month....				
116	Total Production (Divisor for Cost)..				

FIG. 53*B*.—Report of cost, income and tonnage—tonnage statement.

Other Income.—The various items shown under "Other Income" in the income statement (Figs. 53*A* and *B*) are self-explanatory.

Special Auditing Features.—The important features to be considered in the audit of a coal-mining company are as follows:

1. The tonnage sold and on hand should be proved with the production records.

2. Royalty contracts should be scrutinized to determine the basis on which royalties are paid. This will enable the auditor to determine whether or not the payments for royalties have been accounted for properly.

3. Development costs should be analyzed to make sure no charges are being made to this account after the mine has progressed sufficiently to produce the estimated tonnage recoverable and the necessary operating machinery has been installed.

4. The methods in use for determining depletion and depreciation should be examined to see that the proper amounts are set up in the respective reserve accounts.

5. Care should be exercised to see that the accounting for revaluation of property is handled in accordance with the method described under the section dealing with Depletion.

6. Purchases made by employees on credit should be checked to the payroll register to see that proper deductions have been made from their wages.

7. The operations of the company's stores should be examined and verifications made of the petty cash funds, accounts receivable, etc. A proper proportion of the company's general and administrative expense may, in some cases, be allocated to the various stores.

CHAPTER XVI

OIL-PRODUCING COMPANIES

Nature of Business.—The importance of the American petroleum industry can be judged from the fact that since 1857, with the exception of two years, the United States has ranked first each year among the countries of the world as a petroleum producer. During the period since 1857 to the end of 1918, the United States produced 61.41 per cent of the total world production of 7,504,107,138 barrels.

The business of oil-producing concerns consists in drilling and operating oil wells, separating the mud and water from the oil in dehydrating plants, and pumping the clean oil through pipe lines into the shipping tanks. From the tanks it is piped to various parts of the country by marketing companies, who operate either on a contract (which stipulates a price per barrel), or on the daily-run basis, paying for the oil at the prevailing current market price. The business of oil-producing concerns is sometimes simplified by employing independent contractors to drill the wells, supply the water, operate the electric and telephone systems, and run the commissary.

In the older fields, where the oil wells are drilled through stratified rock, the ordinary method of procedure, after locating the well, is to sink a shaft, the same as for a water well, or to drive down a wooden or iron "conductor" through the soil nearly to the bed rock. When the rock has been reached, the drilling is begun with a string of tools consisting of rope socket, drilling jars, drill stem, and bit. Various sizes of the latter are at hand, the one selected to start the hole, which may be anywhere from 8 to 12 inches in diameter, depending on the known rock formation. The drill is raised by mechanical means and allowed to fall of its own weight, thus crushing its way through the strata until water is reached. An iron pipe, or casing, is then placed in the drill hole in such a manner as to exclude the water; below this point a drill of smaller size is used, until water is again encountered. A pipe of smaller size is fitted within the

first casing, and this procedure is repeated until the oil sand is reached. Usually it is unnecessary to "case" the lower part of the drill hole. Just before the producing oil sand is reached is a layer of impervious shale. Unless the oil starts flowing immediately, it is customary, in some sections, to continue the drilling for several feet into the oil-bearing sand, and, after due preparation, explode a charge of nitroglycerine at the bottom of the drill hole, which shatters the surrounding rock, forming a cavity in which the oil can accumulate. This cavity is then cleared of debris, and the pump, with all its appliances, placed in the well, which is started on its career as an oil producer.

From all crude petroleum produced there emanates a gas. A head, with a pipe leading therefrom, is screwed on top of the casing in the well (just above the oil outlet pipe), to which a vacuum is applied, for the purpose of "pulling" this gas from the well—hence, the term "casinghead gas." This gas, from its passage through the oil underground, absorbs a certain amount of gasoline. The gas is drawn to a "compression plant," run through high- and low-stage compressors, passed through cooling coils (for the purpose of condensation), and passes out in a liquid form, known as "casinghead gasoline." It has a very high specific gravity at this stage—above 120 degrees Baumé—too high for commercial usage; in fact, if it were thrown into the air, it would evaporate before reaching the earth; its temperature is below freezing point. To create a commercial product of about 60 degrees Baumé it is blended with an equal proportion of naphtha, the latter being a heavier and lower gravity product, which is derived from crude oil through refinery distillation. Casinghead gasoline is also made by an absorption process, which in many respects is similar to the distillation process of oil refineries.

Organization.—The business organization, which is shown graphically in Fig. 54, of oil-producing companies does not vary to any great extent, as a "producer" is engaged, in the main, in acquiring probable oil-producing acreage, drilling oil wells, lifting the oil to the surface, and delivering same to the pipe-line companies who transport it to refineries for consumption.

The principal variance in companies who confine their activities strictly to the production of oil occurs where it is deemed more profitable to let contracts to "drilling contractors" for drilling of wells instead of purchasing and operating a "string" of their

own drilling tools. If the latter course is pursued, it necessitates an additional department to handle the work.

In recent years it has been considered the best business policy, by some of the larger companies, to complete the cycle; that is,

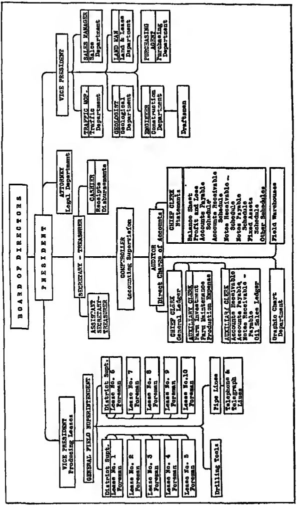

FIG. 54.—Organization chart—oil producing company.

within the one organization, to produce oil, acquire tank cars or construct pipe lines to transport it to their refinery, and, after conversion into its many by-products, consisting principally of gasoline, kerosene, and lubricating oils, to make delivery

by tank cars to its filling stations for final disposition to the consumer.

Legal Status.—The outstanding legal points in this industry are the examination of titles preparatory to the leasing of lands for the purpose of drilling wells. Some states do not allow oil-producing companies to own the fee title to oil leases; in such case they are privileged to procure a lease from the owner of the land for seven-eighths interest, or what is commonly termed the "working interest" in the oil and gas rights thereon, the owner retaining one-eighth (called a royalty), *viz.*, the owner receives

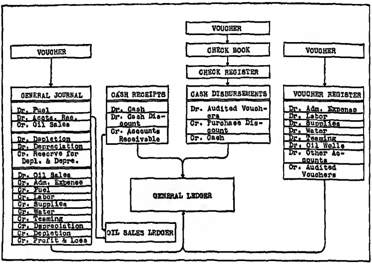

FIG. 55.—Chart of accounting books and records—oil producing company.

one-eighth and the lessee or operator receives seven-eighths of all oil and gas produced. The term of the lease is perpetual, as long as oil or gas is produced in paying quantities. In the event of no drilling or production the usual term of a "commercial" lease is five years—rental payments being made yearly. The lease may be renewed, on the payment of a bonus, by agreement.

As oil leases are the principal assets of producing companies, some organizations have legal departments which direct their entire attention to the examination of titles, contracts, etc. Other outstanding features are the ability to declare a legal dividend (in most states) out of profits prior to including deple-

tion among the expenses, and the right to issue no-par-value capital stock and capital stock at a par value of $1. Also, some states do not allow oil-producing companies to own stock of other corporations engaged in the same or similar line of business.

Accounting Books and Records.—The accounting books and records of oil-producing companies usually consist of a cash book, supplemented by a check book or voucher checks, a voucher register substantiated by formal vouchers and auxiliary registers, an oil sales ledger, and a general ledger. A general journal substantiated by formal vouchers may be used, but it is deemed more expedient to journalize through the voucher register. Even though the sale of oil be on contracts, it is advisable to maintain an oil sales ledger, as complete record must be kept of the daily gauge reports received from the field, and, in addition, the pipe-line companies "run tickets," on which is predicated the settlement made by the pipe-line company to the producer.

Figure 55 presents the accounting books and records used in oil-producing companies. These are arranged and connected so as to show the functions of each, the course of the entries from one to another, and the general relation each bears to the other, and to the system as a whole.

Assets.—Realizing the temporary character of oil wells, the income tax authorities (Regulations 45, Article 223) grant oil operators the option of treating wages, fuel, repairs, hauling, etc. (in connection with the exploration of the property), drilling of wells (productive and non-productive expense), building of pipe lines, and the development of the property either as operating expenses or as an increase in capital assets. Accountants usually prefer to capitalize development costs; but the asset accounts should be divided according to the operating units, so that all the costs of each operating unit may be properly amortized.

The accounting for unsuccessful wells is important, as the cost must not be included on the balance sheet as a capital asset, unless the method followed in computing depreciation and depletion provides for this contingency. The cost of unsuccessful wells in proved land should be added to the cost of the successful wells in the same operating unit, while the cost of unsuccessful wells in unproved land should be (when the undertaking is abandoned) either charged off immediately or treated as a deferred charge to income.

The cost of deepening old wells for the purpose of gaining production from strata not being drained by them should be capitalized, whether the gain in production has warranted the expenditure or not; but the cost of "plugging off" completed wells, or deepening them for other reasons than to attack new oil strata, should be charged to an operating account.

If the "oil in storage" is held intentionally in anticipation of a higher sales price, future deliveries, etc., it should be valued at the cost of producing it, including depreciation and depletion, plus insurance premiums and other expenditures caused by its storage. While, in strict theory, oil in transit to the refining company should be valued at cost, it is frequently carried at the close of a period at the marketing company's quotation.

Heavy oil is frequently pumped into a "sump," close to the well, from which it is piped as soon as the impurities have settled. The cost of constructing the sumps should be charged to the cost of the wells, but the cost of removing sediment deposits from sumps is an operating charge.

The Commissary Stocks account represents the inventory of commissary supplies on hand at the date of the balance sheet. If small stocks are carried, all purchases should be charged direct to the operating account, Commissary Operations; but if large general stocks are carried, the Commissary Stocks account should be kept on the perpetual inventory plan. Many oil producers rent the cook house to a manager, to operate as a boarding house.

Liabilities.—The liabilities of oil producers are of a simple nature, consisting of accounts payable (booked debts not vouched for payment), audited vouchers, accrued taxes (property and production), etc. In recent years it is becoming quite the custom for large producing companies to float bond issues, in most cases not to exceed a term of five years and, in rare exceptions, ten years. The short maturity is due to the character of the security underlying same.

Proprietorship Accounts.—While oil producers may organize in any business form, they usually have corporate organizations, with the usual corporate proprietorship accounts.

Balance Sheet.—The usual form of balance sheet is as follows:

PRODUCING OIL COMPANY

Balance Sheet

As of..............19 ...

Assets

Current and Working Assets:			
Cash on Hand and in Bank		$......	
Notes Receivable (Accrued Interest Added)		......	
Accounts Receivable (Less Allowance for Bad Debts)		......	
Crude Oil in Storage (Lowest, Cost or Market)		......	
Warehouse Stocks		......	
Commissary Stocks		. ....	
Total Current and Working Assets			$......
Deferred Charges:			
Prepaid Interest		$......	
Prepaid Taxes		......	
Prepaid Insurance		......	
Office Stationery Inventory		.. ...	
Total Deferred Charges			......
Fixed Assets:			
Real Estate (Owned in Fee)		$......	
Leaseholds and Farm Investment:			
Leaseholds	$......		
Rigs and Derricks	......		
Buildings	......		
Tanks	......		
Engines, Pumps, and Boilers	.... .		
Tubing, Casing, Pipe in Wells	......		
Tools and Fittings	... ..		
Power Plant Equipment	......		
Oil, Steam, and Other Lines	....		
Other Equipment	.... .		
Total	$. ..		
Less: Allowance for Depreciation and Depletion	......		
Total Leaseholds and Farm Investment		......	
Other Fixed Assets:			
Live Stock and Vehicles	$......		
Automobiles and Trucks	......		
Roads and Rights of Way	......		
Telephone and Telegraph System	......		
Electric System	......		
Sewer System	......		
Water System	......		
Reservoirs	......		
Oil-cleaning Plant	......		
Other	......		
Total	$......		
Less: Allowance for Depreciation	......		
Total Other Fixed Assets		......	
Total Fixed Assets			......
Total Assets			$.... .

LIABILITIES AND CAPITAL

Current Liabilities:			
Accounts Payable		$......	
Notes Payable (Accrued Interest Added)		......	
Audited Vouchers		......	
Accrued Production Taxes		......	
Other Accrued Liabilities		......	
Total Current Liabilities			$......
Capital Stock:			
Authorized (..... shares at $...... par)		$......	
Less: Unsubscribed Stock		......	
Total Issued and Outstanding		$......	
Surplus:			
As at December 31, 1920	$......		
Profit for Year ended December 31, 1921	......		
Total Surplus		......	
Total Capital and Surplus			......
Total Liabilities and Capital			$......

Expenses.—*Depletion.*—The annual depletion charge is the product of the number of barrels of oil pumped during the period, multiplied by the cost per barrel of the oil while still underground. The cost per barrel of the oil is the quotient of the excess of the cost price over the residual value of the oil lands, divided by the total number of barrels of oil which can be economically secured. For example, assume a lease costing $1,000,000, with a residual value of $25,000, the expected production of which is 2,000,000 barrels. The depletion charge for a period in which 100,000 barrels were pumped would be $48,750.

$$\frac{\$1,000,000 - \$25,000}{2,000,000} \times 100,000 = \$48,750$$

The estimation of the future production of oil wells is simplified somewhat by the fact that after the period of flush production oil wells assume a "settled production," which diminishes approximately on the "sum of the expected life-periods" basis. For example, if an oil well, expected to last six years, cost $72,000, exclusive of equipment, the ratio of oil produced during the life of the well, on the theory of a gradual diminishing production and the resulting depletion, would be as follows:

First Year	$\frac{6+5}{2} = 5.5$	$\frac{55}{180} \times \$72\,000 =$	\$22 000
Second Year	$\frac{5+4}{2} = 4.5$	$\frac{45}{180} \times 72\,000 =$	18 000
Third Year	$\frac{4+3}{2} = 3.5$	$\frac{35}{180} \times 72\,000 =$	14 000
Fourth Year	$\frac{3+2}{2} = 2.5$	$\frac{25}{180} \times 72\,000 =$	10 000
Fifth Year	$\frac{2+1}{2} = 1.5$	$\frac{15}{180} \times 72\,000 =$	6 000
Sixth Year	$\frac{1+0}{2} = 0.5$	$\frac{5}{180} \times 72\,000 =$	2 000
	18.0		\$72 000

A more scientific method of estimating recoverable underground reserves of oil than that presented above has been advanced in the "Manual for the Oil and Gas Industry," by the Bureau of Internal Revenue. Making use of the facts that, should two wells under similar conditions produce equal amounts during any given year, the amounts they will produce thereafter, on the average, will be approximately equal, regardless of their relative ages; and that most production-decline curves assume the shape of an approximate hyperbola (formula $yx^n = K$), which, properly plotted on logarithmic coordinate paper, is represented by a straight line, the "Manual" gives the coordinates for the production-decline curves for most of the oil-producing pools and districts. By plotting these coordinates and extending downward the resulting straight line, the future production may be read. The percentage decline of wells is approximately the same only for wells of the same size producing under like conditions. The production-decline curve usually shows a decreasing percentage decline from the previous year, as the wells become smaller.

Depreciation.—Depreciation of fixed assets is the same for oil-producing companies as it is for non-extractive industries, except that both accounting and income tax authorities (Regulations 45, Article 225) base the amount annually deductible for depreciation upon the life of the oil deposit if the reasonable expectation of the economic life of the oil deposit with which the property is connected is shorter than the normal useful life of the physical property.

Depreciation on drilling tools (an important item of expense to oil producers) is frequently calculated on the estimated number of

2,000-foot wells they will drill during their expected life. For instance, a derrick crane and a casing wagon have estimated lives of fifteen and ten 2,000-foot wells, respectively. Repairs on tools are charged to the wells responsible, while tools lost in the hole are charged to wells at an average inventory value less accrued depreciation. Some oil producers treat their drilling tools as a unit for the purpose of ascertaining if it is more profitable to let the drilling of wells out on contract or to operate their own tools. When operated as a unit, the Tool account is charged with all expenses of operating the tools incidental to drilling the well (including depreciation, computed as above). The account is credited with income from drilling at a rate based on the number of feet drilled, and the well is charged with this amount, the cost per foot being the established rate of drilling contractors in the particular locality.

Production Expenses.—Besides depletion and depreciation, the production costs of oil producers consist of labor, supplies, water, fuel, teaming, and miscellaneous expenses.

General Expenses.—The general expenses include the administrative expenses (main office, rent, salaries, expense accounts, stationery, telephones, telegrams, and postage), insurance, and taxes.

Royalties.—The accounting for leases depends on whether the lessors collect their royalty (based on sales and settlement) from the oil-producing company itself or from the purchasers of the oil. Occasionally, the lessors take their royalty in oil. If the royalty is paid by the oil producers, the entries are:

Refining Company (Gross Oil Runs)	$......	
John Smith, Oil Royalty Account (one-eighth royalty)		$......
Crude Oil Sales (seven-eighths working interest)		......
John Smith Oil Royalty	......	
Cash		......

If the royalty is paid by the oil-refining company, the entry is:

Refining Company (seven-eighths of oil runs)	$......	
Crude Oil Sales (seven-eighths working interest)		$......

If the royalty is paid by the refining company, a memorandum account of the royalty oil may be kept for the purpose of checking on the settlements made by the refining company with the lessor. This is a good precaution for the lessor's interest.

Cost Statement.—The fact that each oil well is a more or less independent unit of production renders the use of statistical statements especially important. The form shown on the following page may be used to good advantage.

Property	Oil Well Expenses				Total	General Expenses			Total Field Expense	Barrels Produced	Cost per Barrel
	Repairs	Cleaning	Redrilling	Pumping		General Property Expense	Superintendent and Office	Storage and Shipping			
Well 3											
4											
5											
6											
7											

FIG. 56.—Cost statement—oil-producing company.

The accurate segregation of production by wells is impracticable, as the cost would not justify the outlay of installing a separate "flow tank" for each well; consequently one common flow tank is used for each lease and all wells pump with it. As it is important for managerial reasons, an approximate segregation is made. A portable flow tank is used at regular intervals during the month, ascertaining the production of individual wells. Consideration is also given to the daily time reports of the pumpers, and the totals of the daily productions of each well are corrected (as much as possible) by comparison of the total estimated production of all the wells with the total actual production.

Clearing Accounts.—The clearing accounts of oil producers are similar in character to the service departmental accounts of ordinary manufacturing concerns. Because of the impracticability of charging all expenditures directly to the operating units, oil producers use intermediary, or clearing, accounts, the totals of which are prorated between the operating units. The principal clearing accounts are General Teaming, General Superintendence and Office Expense, and Power-plant Operations.

Income.—Besides oil sales, the earnings of oil producers may include water sales, team rentals, tool rentals, house rentals, commissary revenue, crop revenue (only when the fee is owned or there is a lease on the surface rights), land rentals, dry gas, and casinghead gas sales. Each of these incidental incomes should be charged with their respective expenses before they are set up in the profit and loss statement.

Profit and Loss Statement.—The profit and loss statement represents the results of the business as a whole for the period (either month or year). Substantiating it, individual statements, on the same model, are compiled, reflecting the results of operating each lease as a unit, prorating the administrative and other overhead expenses between the operating units.

PRODUCING OIL COMPANY

Profit and Loss Statement

For Period Ended....... . ..19....

Income:			
Crude Oil Sales			$. ....
Less: Outage on Shipments		$......	
Bottom Settlements		. ..	
Other Deductions		......	
Total Deductions			......
Net Income			$......
Expenses:			
Lifting (or Production Expenses):	$......		
Labor (Pumps, etc.)	......		
Teaming	......		
Fuel	......		
Water	......		
Lubricants	......		
Repairs	......		
Cleaning Out Wells	......		
Other Expense (General Property)	. ....		
Total Lifting Expense		$......	
Administrative and General:			
General or Head Office	$......		
Insurance (Fire, Tornado, etc.)	......		
Taxes	......		
Rentals	......		
Depreciation	......		
Depletion	......		
Other Expense	......		
Total Admin. and General Expense-		. ....	
Total Expenses		$......	
(Add) Inventory (Oil in Storage and Cars—Beginning of Period)	$......	......	
(Deduct) Inventory (Oil in Storage and Cars—End of Period)	......	. ....	
Cost of Sales			......
Net Profit from Production			$......
Selling Expenses:			
Main Office Sales and Traffic Department		$......	
Freight Out (if sold f.o.b. destination)		......	
Other Shipping Expenses		......	
Total Selling Expenses			......
Net Income from Sales			$......

Additions to Income:			
Water Sales	$......		
Team Rentals	......		
Dry Gas	......		
Casinghead Gas	......		
Tools Rental	......		
Home Rental	......		
Commission Revenue	......		
Crop Revenue	......		
Land Rentals	......		
Interest Received	......		
Discounts Taken	......		
Total Additions to Income		......	
Deductions from Income:			
Interest on Bonded Indebtedness	$......		
Interest on Notes Payable	......		
Total Deductions from Income		......	......
Net Profit for Period			$......

Special Auditing Features.—Since oil producers use only a simple set of books and do not need extensive analyses of costs of production, the chief points of interest in the audit of oil-producing companies are the verification of:

1. The division of the lease investment assets into operating units.
2. The allocation of expenses between operating units.
3. The depletion charged off and allocation between units.
4. The depreciation charged off and allocation between units.
5. The allocation of the clearing account.
6. The recording and opinions on abstracts of titles covering leases.

APPENDIX

QUESTIONS AND PROBLEMS

APPENDIX A

QUESTIONS FOR CHAPTER I

COMMISSION MERCHANTS

Books

1. Describe a set of books for a commission merchant Show the relation of each book to the other books of the set. (*New York, December,* 1897.)

2. Give a complete list of books necessary in double-entry bookkeeping for a firm doing a commission business. (*Pennsylvania, November,* 1900, *May,* 1905*; *Michigan, July,* 1909.*)

3. Wherein do consignment books differ from the regular business books? Explain fully how used. (*Pennsylvania, November,* 1901.)

4. Why is a consignment book kept, and what relation has it to the general books of a business? (*Pennsylvania, May,* 1903,* *November,* 1904.)

5. In closing the books of a concern, what effect have consignment books on the result of the business? Answer fully, giving your reasons for your answer. (*Pennsylvania, May,* 1903.)

6. Describe the difference between traders' books and consignment books, explaining each, and how kept. (*Pennsylvania, May,* 1902.)

7. What must the books of a consignee show (*a*) with regard to each consignment? (*b*) with regard to customers' accounts? (*c*) with regard to assets? (*d*) with regard to liabilities? (*Iowa, December,* 1918.*)

8. When a set of sales books in a commission house has been destroyed, how would you replace them to ascertain the sales of any particular consignor, the ledger of the commission house not having credited the consignor with sales as they occurred? (*Pennsylvania, November,* 1901.)

Accounts

9. Devise a chart showing the accounts of a fruit growers' exchange. (*California, November,* 1916.)

10. Prepare an accounting chart for a commission business (cotton or woolen). (*North Carolina, November,* 1919.)

11. How do the accounts of a commission business differ from those of a merchant? (*Florida, July,* 1909.)

12. Outline the theory of accounts pertaining to the business of a commission merchant. (*New York, June,* 1913; *Washington, June,* 1915.)

13. What does the balance of sales account represent in the business of a cotton factory? Why? (*New York, June,* 1913*; *New York, January,* 1919.)

NOTE.—The references, which appear in parentheses after each question and problem, indicate the date the various state boards or examining bodies held the examinations from which the various questions and problems were taken. When the same question has been used without change by the different state boards or examining bodies, all references are given Asterisks have been used after references when repetitions of questions were not identical but the points covered were the same.

14. In closing the books of a concern state your treatment and the relations they bear to loss and gain of the following: (a) goods sold on consignment; (b) goods purchased on consignment. (*Michigan, December*, 1906.)

JOURNAL ENTRIES

15. Outline all entries necessary on the books of the consignee to show the transaction incident to a consignment. (*North Carolina, June*, 1916; *North Carolina, August*, 1917.)

16. How would you record a consignment in the books of (a) the consignor, (b) the consignee? (*Rhode Island, December*, 1907; *New York, October*, 1907.)

17. State two ways of treating consignments inward, when goods are to be sold subject to commission at the price at which they are consigned. Give the arguments for and against each method and your views thereon. (*New York, June*, 1912.)

INVENTORY

18. At the close of the fiscal period, how should consigned goods appear on the books of the consignee? (*New York, June*, 1903; *Washington, April*, 1906; *North Carolina, August*, 1917*; *American Institute of Accountants, May*, 1919*; *Maryland, November*, 1923.*)

19. The Oceanic Sales Company is engaged in the retail supply business; aside from buying goods outright, they carry a very large stock of consigned merchandise.

The following transactions affecting the consigned merchandise for the first six months of 1912 appeared in the accounts:

1912	Stock Consigned (Purchase Prices)	Stock Sold (Selling Prices)	Cost of Stock Sold
January	$35 000	$32 500	$25 000
February	50 000	45 500	35 000
March	40 000	36 400	28 000
April	30 000	41 600	32 000
May	25 000	27 300	21 000
June	35 000	29 900	23 000

On June 30 an actual inventory was taken of the consigned stock and it amounted to $55,750.

What in your opinion is the cause of the discrepancy between the actual inventory and that appearing in the accounts?

Give full explanation, substantiating your opinion.

Eliminate the question of dishonesty in answering.

(*Washington, June*, 1915).

LIABILITY

20. When is a consignee liable for losses? When not liable for losses? (*Iowa, December*, 1918.)

AUDITING

21. A wool dealer's business consists of the following transactions:

(a) Buying and selling for his own account.

(b) Receiving on consignment and selling for commission.

(c) Consigning to other dealers for sale for his account.

All wool received, whether purchased or consigned, is charged to Merchandise account and credited to the vendors or consignors; and all wool disposed of, whether consigned or sold, is credited to Merchandise account and charged to the purchasers or consignees. The prices in the *pro forma* invoices of consigned goods invariably differ from the prices shown in the account sales rendered to consignors or received from consignees. At the end of the year he prepares a statement treating all wool in his possession as inventory, and credits Merchandise account therewith; all debit balances on account of goods sold or consigned by him as accounts receivable, and all credit balances on account of goods purchased or consigned to him as liabilities. The accounts are clerically correct; you are asked to audit his accounts and certify to the correctness of his statement. How would you proceed to do this? Write a report thereon not exceeding two hundred words. (*Pennsylvania, May*, 1905; *Michigan, July*, 1909.)

22. Describe in detail your method of conducting an audit of a commission house. (*Pennsylvania, May*, 1906; *Maryland, January*, 1909.)

23. In auditing the accounts of a factor, what equitable method should the auditor employ to ascertain the amount of interest due to and from the consignor with respect to the account of sales. (*New York, June*, 1913.)

24. What documentary evidence would you require to prove the acceptance of bills payable by a factor against goods in transit? (*New York, June*, 1913.)

25. At the end of the fiscal period how should the consignee handle commissions on partly sold goods? (*Maryland, November*, 1923.)

SIMILAR INDUSTRIES

Agents

26. How should the auditor treat a company's accounts with its several agencies at the end of the fiscal year, each agency having been charged with all of the goods shipped to it, and each having some stock remaining on hand? (*New York, January*, 1900; *Pennsylvania, May*, 1900.*)

27. A concern whose chief office is in Jacksonville operates a number of logging camps, sawmills, and turpentine stills, with a commissary in each place. All purchases are made through one purchasing agent in Jacksonville.

Draw up a system for the purchasing agent which shall provide proof of all goods called for by commissaries being bought, all invoices being charged, all goods ordered being received by the concern, and which shall show proper distribution of all purchases. (*Florida, July*, 1909.)

28. Submit a *pro forma* balance sheet and Profit and Loss account without figures for a manufacturing agent representing three lines. (*California, May*, 1916.)

29. Name some of the distinctive elements in an audit of an agency. (*North Carolina, June*, 1916; *North Carolina, August*, 1917.*)

30. It is found in an audit that certain merchandise shipped to an agent for sale has been charged to his personal account and credited to sales. (*New York, January*, 1902.)

31. On what theory would you proceed to open a set of accounts for an agent? (*New York, January*, 1920.)

32. In preparing a report of an audit, how and why do the forms for an agent differ from those of a trader? (*New York, June*, 1917.)

33. Define: (*a*) the responsibilities of an agent; (*b*) the theory of accounts applied to his activities. (*New York, June*, 1917.)

34. The products of a manufacturing company were sold by a selling agent who bears all the expenses of selling. He receives a commission of 50 per cent of the amount of the sale to the customer. He is to be paid weekly his commissions on all settlements of shipments.

A patentee is also to be paid a royalty on sales. A Stores account is kept, also a Factory Product account, which is credited monthly with finished product, the same being charged to Stores account at factory cost.

What accounts should appear in a monthly balance sheet to show the condition of the business? (*Michigan, December*, 1906.)

35. A manufacturing company sells a portion of its output to a firm of brokers. The brokers guarantee a minimum selling price, above which all profits are equally divided after charging certain selling expenses. Payments are made into a separate bank account by the brokerage company and they make deliveries as they obtain customers for the product. A certain percentage of the trade is contracted for, deliveries for which extend over two or three months.

Make journal and ledger entries necessary to care for one month's transactions, close, and draw up the Profit and Loss account. (*Washington, June*, 1912.)

Warehouse

36. List the books of account and the principal impersonal accounts of a cold storage business. (*Illinois, December*, 1908.)

QUESTIONS FOR CHAPTER II

DEPARTMENT STORES

Accounting System

1. A department store having 25 departments retains an accountant to revise their old system and thoroughly to reorganize their books, so that the firm can, by looking at one book, know at all times the exact standing of each department. Explain fully your idea as to plan and contents of such a book; also give a full explanation as to the accounting system you would provide for the C. O. D. business of a department store. (*Pennsylvania, November*, 1913.)

2. Give a short outline of a system of financial accounting for a hardware jobber who wishes to know the profits on each of four different classes of merchandise.

In your answer you will be expected to give a list of the different books and records and to explain the functions of each, together with a short description of the manner of their use. (*Illinois, May*, 1914*; *Michigan, December*, 1914*; *Illinois, May*, 1915.)

3. Suggest a plan for opening a set of double-entry books for a department store, explaining fully the work therein necessary to arrive at a true

exhibit of the business of each department, and of the entire business. (*Pennsylvania, November*, 1900; *Pennsylvania, November*, 1901.*)

4. Devise a chart showing the accounts of a department store. (*California, November*, 1916; *North Carolina, November*, 1919.*)

5. State the difference, if any, between department store and other mercantile business accounts. What is the aim of department store accounting? (*Pennsylvania, May*, 1906.)

6. You are called upon to install a "budgeted" or "plan ahead" system of control for a large department store. Describe the system you would install, explaining the benefits to be derived from its operation, and mentioning the factors to be considered in connection with the following: (*a*) future sales plan, (*b*) inventories to be maintained, (*c*) purchases, (*d*) mark-downs and mark-ups, (*e*) expenses. (*Pennsylvania, November*, 1921.)

7. You are engaged to install an accounting system in a department store. The management desires to divide the store into 14 separate and distinct departments, as follows:

Piece goods	Silks
Notions	Gloves
Hosiery	Ladies' ready-to-wear
Children's department	Shoes
Millinery	Luggage
Underwear	Corsets
Draperies	Linen

Required: State what books you would employ.
Describe the organization of each book and explain its function.
Draw up a list of the accounts you would open up in the general ledger, and place them in the order they would appear on a trial balance taken from that ledger. (*North Carolina, November*, 1923.)

Profit and Loss

8. In preparing a Profit and Loss account for a trading company having several departments, what main features would you endeavor to show? Give sample form with probable names of accounts but without figures. (*Washington, November*, 1913; *Illinois, December*, 1918.*)

9. State some methods of prorating or distributing against departments the expenses of a department store. Which of those methods is in your opinion the more correct, and why? (*Washington, May*, 1911; *Michigan, June*, 1913.*)

10. Prepare *pro forma* statements showing in detail the information which you would submit to the management of a department store. (*North Carolina, May*, 1922.)

11. How could a manager, who does not keep the books but is interested in the profits of one department of a business, unduly increase the amount of his compensation? In making an audit where profit-sharing agreements exist, should an audit program differ from that required where there are no such agreements? If so, why? (*American Institute of Accountants, May*, 1919.)

Cash Sales

12. What steps would you take in auditing the cash receipts, in a department store in which the sales-check system is used, to ascertain that all cash had been received for goods sold? In case you found collusion among employees, which resulted in loss, what would you suggest to prevent it? (*Pennsylvania, May,* 1900*; *Pennsylvania, November,* 1901; *Washington, June,* 1912.*)

Statistics

13. (*a*) The following figures are for three departments of a store in the Central West. You are to prepare a table such as you would present to the proprietor showing for each department:

(1) Cost of sales.
(2) Percentage of cost to sales.
(3) Gross profit.
(4) Percentage of gross profit.
(5) New inventory at end of month.

Inventory, First of Month—January 1, 1917

Department	Cost Price	Retail Price
A	$12 045.87	$20 260.78
B	2 264.00	3 911.62
C	4 916.45	7 505.13

Purchases for January

Department	Purchases Cost	Purchases Retail	Mark-down on Cost	Mark-up on Retail	Returned Cost	Purchases Retail
A	$260.25	$437.11	$10.15		$20.00	$32.50
B	259.34	419.74		$25.40		
C	303.72	458.26		27.25		

Sales for January

Department	Sales	Mark-down on Retail
A	$1 332.94	$0.99
B	280.89	2.49
C	909.09	3.20

Depreciation of 2 per cent is figured on the cost of all purchases.

(*b*) What basis would you use for the distribution of the following expenses among departments:

(1) Insurance.
(2) Rent.
(3) Delivery expense.
(4) Show-window expense.
(5) Advertising.
(6) General administrative expense. (*Wisconsin, April,* 1918.)

14. You are called upon by a department store for professional accounting services. While your work is to include the making of such an audit as you consider practical, you are to go much further than this. There has been a great deal of confusion in respect to the handling of credits for returns, as well as in many of the other details of the general office. The departmental results are only known once each year at inventory time, and certain departments are then usually found to carry a much larger stock of merchandise than is warranted by the business done. Because the company is having a hard time discounting all its bills, the question of overstocking is a serious one in several ways. You are, therefore, asked thoroughly to systematize the accounting department and to make such changes in the other departments reporting thereto as will enable the business of the company to be carried on as efficiently as possible. You are also asked to devise and install such an accounting control as will enable the company to know each month just what each department is doing and just what the inventory investment of each department is, at least once each month.

Describe in a general manner the thoroughness and scope of the audit which you would make; also in detail the manner in which you would verify the earnings and expenses; and what study, if any, you would make of the departmental results.

Describe the system of accounting which you would install for the purpose of determining the departmental profits or losses monthly and for controlling the inventories, keeping in mind that the present staff of the company is as large as that of other stores doing the same volume of business and obtaining the information which your company desires to obtain. In other words, your system will have to be handled by the present office force.

Describe briefly the general accounting system of the company after such revisions as you have felt advisable to make have been placed in operation. (*Pennsylvania, November*, 1916.)

15. In a business consisting of five separate departments there are kept a general ledger containing capital accounts, the speculative accounts, such as Merchandise, Expenses, etc., and accounts with each separate department; sales ledgers containing the accounts of customers; and a purchase ledger containing the accounts of foreign and domestic creditors.

In the general ledger each department account is charged with all purchases made for the department, and credited with cash received and allowances on account of sales of said department. The sales ledgers contain the different customers' accounts, showing charges for sales and credits for cash, allowances, etc., on account of sales. The purchase ledger contains the accounts of the different creditors, showing credits for merchandise and charges for cash.

In making an audit of the books, how would you determine that the profit or loss for each department had been properly stated for a given period? (*Pennsylvania, May*, 1905.)

Inventory

16. What is involved in the verification of the inventory of a department store? (*California, May*, 1916; *California, November*, 1916*; *Illinois, May*, 1917.*)

17. Describe briefly a form of perpetual or continuous inventory for a department store. What are the advantages to be obtained from its use, and how would you verify its accuracy? How would the system operate? (*Washington, June*, 1912*; *Washington, May*, 1910.*)

Credit Slips

18. In a large country store containing several departments, produce is purchased by the grocery department and paid for with orders on the other departments. How would they be treated in determining the profit and loss of the several departments? (*Michigan, December*, 1914; *Illinois, December*, 1907.*)

19. When making an examination of a department store for a client who contemplates purchasing a substantial interest therein, what matters would you cover in your examination and report? (*District of Columbia, December*, 1923.)

Auditing

20. What are the principal points you would consider in conducting the audit of a large retail store having various departments? (*Wisconsin, April*, 1917; *American Institute of Accountants, June*, 1917*; *Washington, March*, 1909.*)

21. State how you would systematize your work in the conduct of your audit of the books of a department store and what would be your procedure? (*North Carolina, November*, 1919.)

SIMILAR INDUSTRY—BRANCHES

Accounting Systems

22. Based on the following brief facts, give a rough outline of the character of an accounting organization which would be suitable reasonably to safeguard a company engaged in the manufacture of foodstuffs in the handling of the funds, assets, etc. Give titles and duties of the most important members of the accounting organization (if desired, the outline of the organization may be indicated in the form of a chart).

(*a*) The company does a business of $50,000,000 per year, of which 70 per cent is handled through branches and 30 per cent through dealers.

(*b*) There are three manufacturing plants, all within a radius of fifty miles from the head office.

(*c*) There are seven selling branches (not separately incorporated) located at some of the principal distributing centers in the United States, each of which has its own warehouse for carrying stock on hand.

(*d*) The company maintains a proper cost system.

(*e*) All invoices for outlay on manufacturing (except petty items) and for salaries and other important expenses at branches are paid from the head office.

(*f*) The branches keep their own accounts receivable and make collections from their customers, the total of the collections being remitted to the head office daily.

(*g*) All the dealers' accounts are carried on the head-office books.

(*h*) All the purchases of materials are made through a central channel at the head office.

(*i*) The manufacturing plants are not concerned with the selling end of the business and make shipments only on instructions of the head office.

(*j*) Each plant and branch keeps a petty cash fund for minor disbursements.

Your reply should include a list of the records which should be kept at the head-office plants and branches, respectively. (*Illinois, December*, 1917.)

23. Prepare and describe an accounting system, naming the books to be kept, accompanied by draft forms, and give a list of accounts, explaining what the accounts should contain and the entries to be made therein for the following business and conditions:

A corporation purchases the stock on hand, fixtures, and good-will of six wholesale grocery concerns located in a large city. It is desired to keep in the head office the operating accounts and the private books showing the financial position and the net results of each concern, as these concerns are to be operated in much the same way as prior to the purchase, in order to retain all the advantages of the good-will of each. (*Massachusetts, October*, 1916.)

24. A wholesale firm has several branches which it supplies with goods. The branches pay in all their receipts regularly into the main account, reporting to the head office, and sending monthly an abstract showing how much has been paid on ledger accounts, and how much for cash sales; also amount of credit sales and discounts, and total of debtors' balances.

State what accounts should be opened in the head-office books to register these transactions, which are pertinent to the Profit and Loss accounts, giving illustration to show how they should be brought into general agreement in preparation for an audit. (*Washington, May*, 1911.)

25. Recommend, with all necessary explanations, a set of books especially adapted to the use of a firm that deals exclusively in butter, cheese, and eggs, at wholesale, retail, and on commission; and has three branches in the same city, the books being kept at the main store. (*New York, June*, 1899; *Washington, May*, 1903.)

26. A clock-manufacturing company located in Connecticut has branch stores in New York, Chicago, and Boston. Describe a system of accounts for the home office which will show the stock on hand at the home office and at each of the branch stores. (*Massachusetts, October*, 1914.)

27. Describe the best method of keeping in one ledger the accounts of a manufacturing concern owning several mills, so that the receipts, various expense accounts, inventories, and gain or loss of each mill may be readily ascertained from the ledger. (*Massachusetts, June*, 1912.)

Accounts

28. What results are sought in the keeping of accounts with branch houses? Under what circumstances would you debit or credit such accounts? What would the balance of any such account show? (*New York, June*, 1904; *Virginia, October*, 1912; *New York, January*, 1900.*)

29. Explain how the books of a branch business may be kept independently of the home-office books, and yet in such a manner that the records may any time be included in the home-office books. (*Massachusetts, April*, 1911*; *California, June*, 1917; *Michigan, June*, 1919.*)

30. Illustrate with a *pro forma* trial balance of the branch business and show the journal entries necessary on the home-office books to include the branch accounts. (*California, June*, 1917.)

CASH

31. What method would you recommend for recording the cash receipts on the general cash book of a company operating ten branch houses, each depositing its daily receipts in a separate bank? Describe fully. (*New York, June*, 1908.)

32. The head office in New York on January 31 mails $5,000 to the branch house in Chicago, telegraphing to that effect. How should this item be handled by the branch house so that their account with the head office will agree in the trial balance taken as of January 31? (*Illinois, May*, 1905.)

33. The X. Y. Z. Corporation, the accounts of which you are auditing, is an American company, and has as its principal asset an industrial plant, purchased many years ago, located in Mexico. It also has capital locked up in current inventories, accounts receivable, etc., incidental to the operation of the Mexican plant. For many years the Mexican accounts were reflected on the head-office books on the basis of $2 Mexican to $1 U. S. A. Do you consider this proper at a time when the Mexican exchange stands at, say, $1 Mexican equal to 18 cents U. S. A.? Assuming you feel that the situation requires adjustment, how would you proceed to correct the American balance sheet? (*American Institute of Accountants, November*, 1917.)

INVOICES

34. Should a manufacturing concern invoice its goods sent to a branch house (*a*) at selling prices; or (*b*) at the prevailing wholesale price of the same or similar goods obtainable in open markets; or (*c*) at cost? State the reasons fully. (*Pennsylvania, November*, 1904*; *Michigan, November*, 1907*; *Florida, July*, 1909*; *Virginia, November*, 1910; *Michigan, June*, 1913*; *Colorado, December*, 1913*; *American Institute of Accountants, May*, 1918.)

AUDITING

35. In auditing a large concern, such as a mining company operating a number of distinct plants, how would you satisfy yourself that the following items were properly accounted for and safeguarded: (*a*) advances on payrolls, both cash and merchandise; (*b*) unclaimed wages; (*c*) purchases which are made by one purchasing agent for all the plants. (*Florida, July*, 1909.)

36. Indicate what would guide you in examining and criticizing accounts receivable carried on the branch-office books of a business. What would you require before (*a*) accepting the debts as good; or (*b*) writing off those you were told were bad? (*American Institute of Accountants, November*, 1918; *West Virginia, May*, 1919.)

37. You are employed to audit a corporation having several branch offices. How would you safeguard yourself in your report, if you were not instructed to visit any except the home office? (*Virginia, November*, 1918.)

38. In case it is expedient to have a local accountant audit the accounts of a branch office of a wholesale trading firm, for which you conduct the general audit, state matters on which you would require a report. The branch sells goods, collects from customers, pays all local expenses, and remits cash in round amounts to the home office. (*New York, January*, 1911.)

39. A Chicago business house operates a number of branches in different cities to which consignments are made for sale. If employed as the auditor of these branch houses, what general course should be followed? Submit a sketch of a general form showing the results of the business as a whole, including the Chicago house and its branches. (*Illinois, May*, 1904.)

40. A corporation has branches in twenty cities, each selling at retail its standard product and paying local bills from receipts. State matters on which the traveling auditor of the corporation should report, and suggest suitable forms therefor. (*New York, January*, 1911.)

41. How would you discover and subsequently prevent defalcations, if the manager of a branch house issues notes and absorbs the proceeds, making no report on the books of the company? (*California, May*, 1916.)

42. You are instructed to audit the accounts of the Chicago Dry Goods Company for the year to December 31, 1915. This company has a wholesale department and also operates four retail stores. The client would like you to certify the accuracy of the balance sheet of December 31, 1915, and the profits for the year. Prepare a program outlining the work to be done by your accountants, stating why you consider it necessary. (*Illinois, May*, 1916.)

43. You are the manager of the Pittsburgh office of an international accounting firm. You are requested to take charge of the audit of the Universal Steel Company with headquarters at Pittsburgh, and with manufacturing, mining, and jobbing plants scattered throughout the world.

Draw up an outline of directions of the work you want done at the various branches for the purpose of effecting a consolidated balance sheet. (*California, November*, 1916.)

44. A local branch of an eastern drug company does a wholesale and a retail business. It sends to the home office daily copies of all invoices, credit memoranda, and a transcript of the cash book, the latter consisting only of receipts together with credits allowed customers for cash discounts, freight paid, and a column also for postage, in which is entered small remittances paid in stamps.

All funds are deposited in the bank as received, and the bank notifies the home office daily of the amount of deposit. All disbursements are made through the home office. There are no overdue accounts. What is your best judgment as to the desirability of auditing the affairs of this branch? Give reasons supporting your answer. (*California, May*, 1916.)

45. A manufacturing concern having several branch offices for the sale of its product is in the habit of billing the branches at a wholesale price and expects each branch to show a profit. A balance sheet is prepared in which the current accounts with the branches (after closing out their profits and losses into head office) are carried as accounts receivable. These branches carry a considerable stock of merchandise and have their own accounts receivable and possibly some outstanding accounts payable. How would the above balance sheet have to be modified in order to show correctly the financial condition of the business? (*American Institute of Accountants, November*, 1918.)

46. You are auditing the accounts of merchants with branch houses in Quito, Valparaiso, Lima, and Tokio, and owning real estate in each of these places, debited in the books of such branches, respectively. The balance of assets over liabilities at each branch is converted at the rate of exchange ruling at the date on which the balance is taken, and treated as an asset in the balance sheet of the firm. Can you pass these entries? If not, state fully what adjustments would, in your opinion, be necessary. (*Washington, June*, 1915.)

47. You are making an examination of the affairs, assets, and liabilities of a textile mill and a report as the basis of credit. The mill is one of several, each a separate corporation, but all owned by three stockholders who also own the selling house which distributes the output of all the mills.

You find that just prior to the date of your examination an entry was made debiting Selling House account and crediting Surplus for a large amount. This entry represented a voluntary cancellation of indebtedness, was supported by a receipt given by the selling house, and was duly accepted and approved at a meeting of the directors. What might be the causes and the results of such a transaction, and in what manner would you verify and report? (*Massachusetts, October*, 1917.)

48. The B. and E. Company is a wholesale trading concern, having its headquarters in Lancaster, Pa., and maintaining branch stores in a number of cities, Richmond, Va., among others. These branch stores receive their goods upon consignment from the head office, keep the accounts with their customers, make collections thereon, keep local bank accounts, pay current expense bills, and remit their excess funds from time to time to the head office. The manager of the Richmond branch is employed on a small fixed salary and a commission based on the sales, the latter compensation being forwarded to him quarterly by check from the Lancaster office. Without intending to steal, he adopted the habit of anticipating the arrival of his check, and withheld collections received from customers, making no entries therefor upon the books for the time being, but being careful, however, not to hold out any one item longer than a few days, thus constantly replacing out of the current receipts items previously withheld. Upon receipt of his quarterly check for commissions he would at once make good the amount he had advanced to himself out of the company's funds.

If you were instructed to audit the accounts of the B. & E. Company, including those of the branch offices, would your audit disclose this condition. If so, concisely and carefully describe the course you would pursue.

What criticisms have you to offer relative to the administrative plan of the B. & E. Company as outlined above?

Describe clearly the form of accounts you think best adapted to this business if it were operated in accordance with the methods best suited in your judgment for the management of a business maintaining branch stores. (*Pennsylvania, November*, 1908.)

49. A trading and mining company maintains five general stores at each of five separate stations, and concentrates its supplies each year at station A, which is the only one accessible by railway, and distribution is made from thence by means of wagon and pack trains. The cost of goods laid down at station A is 10 per cent above invoice prices at the company's general office in Montana; and the agent at station A is instructed to rebill all shipments to station B at 20 per cent above original invoice cost, to station C at 35 per cent, to station D at 40 per cent, and to station E at 50 per cent, the experience of several years bearing out the general manager's statement that such additions are approximately correct and cover actual cost of transportation.

In auditing the accounts for the purpose of certifying the annual balance sheet, you ascertain that certain goods at station D, amounting to $10,000, are inventoried by the agent at that point at 70 per cent above the original invoices which you have examined at the home office. He states that station E, being overstocked, shipped him several lots of merchandise at price billed out to E by station A, plus 10 per cent for estimated cost of handling and repacking at E; and to this D legitimately added 10 per cent for cost of transportation from E back to D.

In your visit to other stations you find many similar instances where goods have been moved back and forth and each time the shipping station has added 10 per cent for handling and repacking.

Out of a total inventory at all stations of goods originally costing $200,000, the summary shows final extensions of values aggregating $325,000, of which not more than $75,000 is covered by cost of transportation, leaving some $50,000 represented by internal charges added between the different stations.

Review the foregoing statement and give your method of handling such accounts. (*Illinois, May*, 1908.)

50. A corporation having several branch offices maintains a general ledger account with each branch and charges, at selling value, all goods sent to the branches for stock. When preparing the balance sheet at the closing period, the balances due from the branch offices are included with the accounts receivable. If you see any objections to this method, state them and explain how you would deal with the accounts. (*Ohio, October*, 1920.)

51. You are examining the accounts of a mercantile corporation which has several selling branches, but all shipments are made and all customers are billed by the main office. It is not intended that you shall visit the branches. Outline a procedure for the verification of the branch balances. (*American Institute of Accountants, November*, 1923.)

52. In consolidating the statements of a foreign branch with the statements of the home office, it is necessary to make conversions from foreign to domestic currency. At what rates should the balances of the following accounts be converted? Give your reasons. Fixed assets, inventories at

beginning of the period, current assets, current liabilities, nominal accounts. (*American Institute of Accountants, May*, 1921.)

QUESTIONS FOR CHAPTER III

COTTON MILLS

1. Prepare an accounting chart for cotton mills. (*North Carolina, November*, 1919.)

2. Prepare an accounting chart for a woolen mill. (*North Carolina, November*, 1919.)

3. In the preparation of a statement of the cost of making the product in a manufacturing business, such as cotton mills, how would you treat the losses and gains from hedging contract operations? (*North Carolina, August*, 1917*; *North Carolina, November*, 1918.)

4. Define and state how you would handle in an audit of a cotton mill: (*a*) by-product; (*b*) visible waste; (*c*) invisible waste. (*North Carolina, June*, 1916.*)

5. A purchased a manufacturing business that had an inventory of finished product amounting to 5,000 pounds. He ran the plant one year and took inventory and found he had 8,000 pounds of finished product on hand. You were called in to make an audit of the books, and the examination disclosed he had sold 29,000 pounds of product, and the total cost of making the product amounted to $12,800.

Prepare a statement showing the cost per pound. (*North Carolina, September*, 1919.)

6. Prepare a detailed audit program of a textile manufacturing company, naming the principal ledger accounts. (*Massachusetts, October*, 1914; *North Carolina, June*, 1916.*)

7. Name some of the main features in the audit of a cotton mill. (*North Carolina, August*, 1917.)

8. A superintendent of a woolen mill manufacturing piece goods reports the total number of pounds of product made during the year. State how you would verify the correctness of his figures. (*North Carolina, June*, 1919; *North Carolina, September*, 1919.)

9. Assuming that these are principal divisions of the expense accounts of a manufacturing business selling the product through traveling salesmen to the retail trade: (*a*) manufacturing expense; (*b*) selling expense; (*c*) administration and general expense; (*d*) profit deduction expense, designate under which division you would classify hedging contract expenses. (*North Carolina, November*, 1919.)

10. Assuming that a balance sheet consists of three principal divisions of accounts, *viz.*, assets, liabilities, and net worth, state in which division you would place the reserve for losses on hedging contracts. (*North Carolina, November*, 1918.)

11. You are engaged to audit the accounts of the X Company, manufacturers of hosiery, this company operating four mills, the product of which consists of numerous grades and styles. The company is without

a cost system, but endeavors to ascertain its costs by taking the estimated quantities of cotton or silk, to which is added a labor cost determined by tests, and to the total thus obtained an arbitrary percentage is added to cover general expenses, etc.

The general books consist of a ledger, cash book, journal, and voucher record. Invoices are entered after approval and have stamped thereon the date of approval. The receiving record consists of loose memoranda in pencil containing the name of the party from whom materials were received and the number of cases, but no further details.

Give full particulars as to the steps you would take to verify: (a) the inventory; (b) the liabilities. (*Pennsylvania, November*, 1913.)

12. You are engaged to audit a cotton mill company, and it is explained to you that your certificate was desired without qualification as to the inventories of cotton, cotton in process, and cloth.

Mention the principal steps you would take to satisfy yourself as to the correctness of these inventories: (a) If your audit were begun prior to the date on which the books were to be closed. (b) If your audit were not begun until several days after the closing date. (*North Carolina, November*, 1922.)

13. You are engaged in the audit of a cotton mill which appears to be well balanced—that is, there is no undue accumulation of stock at any particular stage in the process of manufacture. The mill is engaged in making but one class of goods.

The cost of raw cotton used was 20 cents per pound. The percentage of theoretical waste was 15 per cent. The valuation placed on the finished goods per pound was 39 cents, and on cotton in process, 31 cents. The pounds produced multiplied by the cost per pound of 39 cents came within $800 of the cost. Control accounts balance. What would be your deductions from these facts? State fully. (*North Carolina, May*, 1923.)

14. The Middletown Woolen Company appoints a selling agent in each of the principal cities in New England, and, in order to enable its special agents to conduct business, guarantees the account of each agent to the amount of $10,000. How should such guarantee be recorded on the books of the Middletown Woolen Company? (*New York, January*, 1923.)

15. Prepare *pro forma* statements showing in detail the information which you would submit to the management of a cotton mill. (*North Carolina, May*, 1922.)

SIMILAR INDUSTRIES

Chemical Plants

16. What accounting provisions would you make in order to maintain the financial integrity, before declaring dividends, in the chemical industry? (*California, May*, 1916.)

17. Name some of the main features in an audit of patent medicine companies. (*North Carolina, August*, 1917.)

18. What facts should the cost accountant of a chemical plant show? (*North Carolina, May*, 1923.)

QUESTIONS FOR CHAPTER IV

GREY-IRON FOUNDRIES

1. Prepare a chart of primary accounts for a foundry partnership. No attempt need be made to go into minute detail; balance sheet accounts with indicative income and expense accounts will suffice. (*Pennsylvania, November*, 1919.)

2. Give a *pro forma* monthly operating and profit and loss statement for a foundry, introducing a statistical statement showing unit costs, or any other useful cost data, which may be practical. (*American Institute of Accountants, November*, 1918.)

3. In calculating the direct expense for a grey-iron castings foundry, which is correct: the per pound basis, the rate per hour basis, or the percentage basis? Give reasons and explain fully. (*Michigan, June*, 1914.)

4. Prepare, supplying your own figures, a cost sheet for a foundry. (*Illinois, December*, 1918.)

5. What cost unit would you recommend for foundries? (*Wisconsin, May*, 1916.)

6. You are instructed to design and install a system of cost and office accounting for the Acme Malleable Castings Company. Name and give a description of the forms you would submit to your client; also sketch the cash book, voucher register, journal voucher, and sales invoice. (*Illinois, May*, 1916.)

7. The A Foundry Company has made no changes in its accounting system for many years, its methods being crude and its records very limited. On account of much greater competition, the officers have decided to have installed a cost system, feeling that by so doing they might be able to conduct their business more efficiently.

Outline in a general way the cost system you would install and describe in report form the details thereof, together with rough drafts of the forms that you would use, so that the officers may be able to understand just what you have in mind, and so that the bookkeeping department can carry out your system after the installation is complete. (*Pennsylvania, November*, 1921.)

8. Prepare *pro forma* statements showing in detail the information you would submit to the managers of a foundry. (*North Carolina, May*, 1922.)

SIMILAR INDUSTRIES

Blast Furnaces

9. A company was organized in February, 1900, for the purposes of constructing and operating two iron furnaces as one plant, and of owning and mining ore properties.

An issue of mortgage bonds was arranged for the purpose of providing funds to finance the constructing of the plant and the purchase and development of ore properties. The mortgage provided that the property should be maintained by the company in first-class condition.

The first furnace was put in blast in May, 1901, and the second in June, 1902. The ore property was developed and mining commenced in April,

1901, at which date the total cost of the property and development amounted to $50,000. The superintendent of the plant reports monthly the quantities of ores and materials received, and also the quantities used at the furnaces. Stores accounts are kept for each kind of ore and material. Piles of ores and materials are cleaned up periodically. The plant superintendent also reports the quantities of pig iron shipped monthly.

January 2, 1905, you are appointed in the interest of the bondholders and shareholders to audit the accounts of the company for five years ending February 28, 1905.

Apart from the accuracy of the clerical work and bookkeeping, what are the principal points to be ascertained with regard to (*a*) expenditures; (*b*) issue of bonds; (*c*) maintenance of the properties? State how you would satisfy yourself as to the accuracy of the following assets and liabilities at the close of the period of your examination: stocks of ores and materials; stocks of pig iron; mortgage bonds outstanding; capital stock outstanding. (*New York, January*, 1906.)

10. Outline a simple classification of accounts for the operation of a blast furnace (pig iron), giving explanatory text under each account head and suggesting a proper method for providing for the cost of relining a furnace; also show separately a grouping of the accounts in the order you would suggest to present a monthly statement of profit and loss. (*Pennsylvania, November*, 1912.)

11. As a result of war conditions, a pig-iron furnace, which was formerly unprofitable, was put into operation. In view of conditions which will perhaps exist at the close of the war, the officers of the furnace company are desirous that this company shall have the most efficient and most effective cost and accounting system that it is possible to obtain.

You are called upon to make such revisions in the accounting and cost methods as you deem advisable. Outline in as much detail as practicable the methods which you would suggest for the control of the labor and supplies; also the cost and accounting system which you would install. State the manner in which you feel your methods and forms will give more efficient results and more effective control than those now in use. Your answer need not be in report form. (*Pennsylvania, November*, 1918.)

12. What cost unit would you recommend for a blast furnace? (*Wisconsin, May*, 1916.)

13. Give a *pro forma* monthly operating and profit and loss statement for a rolling mill producing steel rails, introducing a statistical statement showing unit costs, or any other useful cost data which may be practical. (*American Institute of Accountants, November*, 1918.)

Other Synthetic Non-by-product Industries

14. If asked to audit the circulation of a newspaper or magazine for an advertising association, state how you would proceed. (*Illinois, May*, 1914.)

15. In making an audit of a metropolitan newspaper, what features should receive particular attention? Outline the daily, weekly, and financial reports which you believe should be prepared, explaining the advantages and purposes of each; also the manner in which the information making up

these reports is obtained from the books and records. (*Pennsylvania, November*, 1917.)

16. Under what conditions would you approve of the value of a copyright upon a book of a publishing house? (*California, November*, 1916.)

17. Assuming that the main expense accounts of a daily newspaper are editorial expenses, composing room expenses, press and stereotyping expenses, mailing room expenses, business-office and executive expenses, materials and supplies consumed, and miscellaneous expenses, how would you apportion all of these expenses to the following divisions of cost, and give your reason?

Circulation:	Advertising:
City.	Local.
Suburban.	Foreign.
Country.	Classified.

(*North Carolina, November*, 1919.)

18. Name some of the distinctive elements in an audit of newspaper publications. (*California, May*, 1916*; *North Carolina, June*, 1916; *Illinois, December*, 1916*; *North Carolina, August*, 1917.*)

19. In the audit of the accounts of a newspaper publisher, how would you verify subscriptions; advertisements? (*North Carolina, November*, 1920.)

20. Prepare an accounting chart for a newspaper publisher. (*North Carolina, November*, 1919.)

21. What is involved in the verification of picture costs in a film company? (*California, June*, 1917.)

22. State what you would consider to be the most important special problem arising in the audit of moving picture producers, and how you would deal with such a problem. (*American Institute of Accountants, June*, 1917.)

23. To what extent or under what circumstances could you certify to scenarios of a film producer? (*California, June*, 1917.)

24. What cost unit would you recommend for the following industries: (*a*) tanneries; (*b*) paper mills; (*c*) canning factories; (*d*) brick yards; (*e*) knitting mills; (*f*) printing plant? (*Wisconsin, May*, 1916.)

25. A baking company charges customers 50 cents each for the containers in which the product is shipped and credits the customers with a like amount when the containers are returned. The containers originally cost 40 cents each and have a life of four years. Briefly outline a method of handling the charges and credits on containers in the accounts of the company. (*District of Columbia, December*, 1923.)

QUESTIONS FOR CHAPTER V

FLOUR MILLS

1. Give a *pro forma* monthly operating and profit and loss statement for a flour mill, introducing a statistical statement showing unit costs or any other useful cost data which may be practical. (*American Institute of Accountants, November*, 1918.)

2. What cost unit would you recommend for flour mills? (*Wisconsin, May*, 1916.)

3. Outline a system to handle the accounts of a grain elevator and mill which sells some of the grain, grinds the balance, and disposes of the resultant products. (*Kansas, May*, 1916.)

4. A roller mill had in its elevator at the beginning of the year 40,000 bushels of wheat at a value of $60,000. Its purchases during the year aggregated 300,000 bushels at a cost of $540,000. It had as inventory at the end of the year 25,000 bushels. The market price of wheat at the end of the year was $2.25 per bushel. What inventory value would you place on the 25,000 bushels? (*North Carolina, November*, 1918.)

OTHER ANALYTIC BY-PRODUCT INDUSTRIES

Creameries

5. What cost unit would you recommend for creameries? (*Wisconsin, May*, 1916.)

Packing Houses

6. Prepare, supplying your own figures, the Profit and Loss account, with relative supporting exhibits, of a packing company (operating subsidiary companies). (*Illinois, December*, 1918.)

7. State briefly one special point which arises in connection with the audit of packing houses. (*Illinois, December*, 1918.)

QUESTIONS FOR CHAPTER VI

CEMENT MILLS

1. What are the most important points to be covered in the investigation of a prospective purchase of cement mills? (*California, June*, 1917.)

2. What cost unit would you recommend for cement mills? (*Wisconsin, May*, 1916.)

OTHER ANALYTIC NON-BY-PRODUCT INDUSTRIES

Breweries

3. What accounting provisions would you make in order to maintain the financial integrity, before declaring dividends, in a brewery? (*California, May*, 1916.)

4. Give a *pro forma* monthly operating and profit and loss statement for a brewery, introducing a statistical statement showing unit costs, or any other useful cost data which may be practical. (*American Institute of Accountants, November*, 1918.)

5. How are the accounts affected by the loss of barrels in a brewery? (*California, June*, 1917.)

6. What cost unit would you recommend for a brewery? (*Wisconsin, May*, 1916.)

7. In the examination of the accounts of a brewery, how would you determine that the amount of beer produced and disposed of during the year was in proper relation to the conditions disclosed by final inventories? (*Illinois, December*, 1907.)

8. Describe briefly the books of account and principal impersonal accounts peculiar to a brewery. (*Illinois, May*, 1904.)

9. Give your opinion as to the proper methods for valuing the inventories of breweries. (*Washington, November*, 1913.)

10. The following are accounts commonly employed in brewery bookkeeping: Cooperage, Capital Stock, Brewing Materials, Customers' Loans, Revenue Stamps, Notes Payable, Wages (brewerymen), Advertising, Repairs, Fuel, Collection Expenses, Salaries (official and clerical), Stable Supplies and Expenses, Sales, Cash, Freight and Cartage (inward and outward), Interest, Manufacturing Expenses, Insurance, Profit and Loss, Real Estate, Bonded Debt. Classify the above-mentioned accounts for ledger and financial statement purposes. (*New York, June*, 1904.)

QUESTIONS FOR CHAPTER VII

COMMERCIAL BANKS

General

1. Name the principal elements of the laws relating to banks. (*North Carolina, August*, 1917.)

2. What are the present requirements of the Federal Reserve Banks in regard to the verification of the accounts of companies whose paper is submitted by member banks for rediscount? (*Massachusetts, October*, 1915*; *American Institute of Accountants, November*, 1918; *West Virginia, May*, 1919.*)

3. In auditing a West Virginia state bank, how much actual cash would you require to be on deposit or in an accredited reserve bank? (*West Virginia, May*, 1917; *West Virginia, May*, 1919.*)

4. State briefly the sources of income of national banks; state banks. (*Pennsylvania, May*, 1902*; *Maryland, January*, 1909.*)

5. Describe the purpose and functions of the Federal Reserve Banks. (*California, May*, 1916.)

6. Give in substance the rules lately laid down by the State Banking Department regarding accrued interest as related to statements filed with the department by banks. (*New York, June*, 1906.)

7. What are the requirements of the National Bank Act as to investments, as to cash; what items are applicable to reserve? (*Pennsylvania, November*, 1909.)

8. If a national bank wishes to issue national bank notes and place them in circulation, what is the course of procedure and how are they finally redeemed? (*Maryland, January*, 1909.)

9. State the more important points of the national banking system relating to the formation of banks, responsibilities of directors, and the

general requirements as to the scope and conduct of the business. (*Pennsylvania, November*, 1908.)

10. (*a*) What record does the Pennsylvania Commission of Banking require state banks and trust companies to keep of rehypothecated collateral of borrowers? How would you treat this item on a balance sheet?

(*b*) What methods of daily control should be used in the bookkeeping department of a bank in respect to individual deposits where the ledger system is in vogue?

(*c*) What methods would you suggest for keeping the liability account, Interest Payable to Depositors, in adjustment where a bank has a number of individual depositors ledgers, in which the interest is credited semi-annually in each ledger on different dates? (*Pennsylvania, November*, 1920.)

11. Complete the following chart of a bank's officers and employees by setting forth briefly the duties of the various clerks and the different books and records kept by each, showing their relationship to each other, etc.: president, vice-president, cashier, auditor, receiving teller, paying teller, note teller, mail teller, exchange teller, loan clerk, discount clerk, correspondence clerk, stock and bond clerk, and general bookkeepers. Give any further information with which you may be familiar concerning banking routine. (*Michigan, July*, 1909.)

12. Prepare a chart showing the departments of a modern fully equipped bank. (*North Carolina, May*, 1923.)

13. Write a full description of the Federal Reserve Banking System, comprehending its origin and complete operation. (*North Carolina, May*, 1923.)

14. Write a 500-word outline of the regional bank legislation recently enacted and indicate ways in which it will affect business. (*Michigan, December*, 1914.)

15. Outline a practical method for ascertaining the unearned discount on paper taken by a banking concern, when it is necessary to publish a statement showing the financial position. Why do bankers generally omit to state the liability of this kind? (*Illinois, December*, 1907.)

16. Given the following data, construct a bank statement: capital stock, $450,000; U. S. bonds, $133,460; loans and discounts, $7,875,620; surplus, $500,028; circulating notes, $90,000; acceptances by this bank, $676,590; undivided profits, $93,686; municipal bonds, $178,290; short-time securities, $301,800; stock of Federal Reserve Bank, $27,000; due from other banks, $1,900,024; deposits, $10,762,116; cash in vault, $746,626; due from Federal Reserve Bank, $1,409,600. (*Wisconsin, April*, 1918.)

17. Present a national bank statement in proper form intended to indicate a stock value of 160. (*Michigan, June*, 1919.)

18. Construct a balance sheet for a national bank, showing every possible item which should appear in one. (*Michigan, December*, 1915; *Illinois, December*, 1918.*)

19. Discuss the best method for disbursing salaries in a bank having a staff of 100 people; what records thereof would you suggest be kept? How should collection charges to customers or deductions for same be handled and recorded in order that they may be properly accounted for and susceptible of easy audit? (*Pennsylvania, November*, 1913.)

20. Into what divisions should the income, profit and loss statement of a banking firm (dealing only in bonds) be divided in stating the gross profits? (*New York, June,* 1917.)

21. A merchant going abroad to purchase goods secures from his bank, on the strength of his general financial standing, a letter of credit for use in his contemplated purchases of $500,000. How would the issuance of this letter of credit be shown in the accounts of the bank? (*American Institute of Accountants, May,* 1920.)

22. (*a*) What is a national bank?

(*b*) What is a state bank?

(*c*) What is a private bank?

(*d*) What is a savings bank, and may it be either "national" or "state"?

(*e*) What is a trust company?

(In answering these questions you are expected to point out wherein these institutions are essentially different from each other.)

(*f*) What is a liability ledger and why should it be kept in balance?

(*g*) What is a discount register?

(*h*) What is a collateral loan?

(*i*) What are exchanges for clearing house?

(*j*) What are the duties of a trust officer?

(*k*) A bank in Seattle keeps a deposit account with a bank in New York; the New York bank forwards a current account to the Seattle bank promptly at the end of each month and asks that the Seattle bank advise it of any differences. What items do you think would have to be checked from the books of the Seattle bank in order to effect the necessary reconciliation, and what are the most probable items which would be found outstanding?

(*l*) What is an inactive account?

(*m*) How many foreign banks are permitted to do business in the state of Washington?

(*n*) What is a commercial paper?

(*o*) Is a state bank required to take into account its accrued interest receivable or payable before arriving at the profit which it may distribute in dividends?

(*p*) What percentage of the demand deposit must the reserve of a state bank be, and how may it be made up?

(*q*) What are clearing house certificates; how and why are they issued? (*Washington, June,* 1915.)

Books

23. Give a complete list of the books necessary in double-entry bookkeeping for a firm doing a banking business. (*Pennsylvania, November,* 1900; *Pennsylvania, May,* 1905.*)

24. Describe and illustrate by condensed forms the books, etc., required to record to the best advantage the operation of the loan department of a large national bank. (*Pennsylvania, November,* 1913.)

25. In most large banks the following books are kept: private ledger, general ledger, loans ledger, deposit ledger, investments ledger, agency

ledger, corporation ledger, bills discounted book, short-bills book, securities record, country-drafts record, and standing-order book. Show the forms and rulings for these books and describe briefly the various accounts which enter into them. (*Michigan, July*, 1909.)

26. The Sea Side Bank, having 9,000 depositors' accounts on which the bank allows 2 per cent interest on daily balances, requires a form for its depositors ledger which will enable the bank officers to ascertain accurately and quickly the depositors' balances, including the interest. The following items are to be incorporated in the form submitted: deposits, July 1, \$5,000; October 1, \$50; November 1, \$60; withdrawals, July 1, \$4,245. Submit the form and calculate the interest to meet the requirements as of January 1, following. (*New York, January*, 1917.)

27. Prepare a comprehensive report, together with rough sketches of the necessary forms, recommending a system for the collateral loan department of a national bank, having loans secured by stocks and bonds aggregating \$10,000,000, the majority of which are loans to brokers. Of the total loans, \$4,000,000 are time loans and the balance demand loans, and in number the loans aggregate about 500.

The bank maintains an audit department and provision should be made outlining a system for continuous daily audits of the loan department.

It is understood that the bank will not adopt any system which will result in a delay in effecting the daily transactions or cause annoyance to its customers. (*Pennsylvania, November*, 1913.)

28. A firm of bankers dealing exclusively in public utility bonds wants a convenient form of statement which will enable them to tell at a glance the number of bonds to be accounted for by the cashier and the gross profits on sales of bonds. Draft such a form for the bond blotter. (*New York, June*, 1917.)

29. (*a*) You have received and deposited a check in your bank. Briefly describe its course through your bank and to its "home bank," and hence to the drawer or maker of the check. Assume the check to be drawn on the Chemical National Bank of New York, but sent by your bank to the American Exchange National Bank, the American Exchange being the New York correspondent of your bank. (*b*) What is the purpose of the discount tickler? (*c*) What is the purpose of the collection tickler? (*New Jersey*, 1904–1909.)

Notes

30. On June 1, 1910, Corwin and Company discounted at 5 per cent per annum with their bank a three months' note dated May 1, 1910, for \$5,000. The bank's semi-annual accounting takes place June 30, 1910.

What entries did the above transaction necessitate on the books of the bank (*a*) on June 1, 1910; (*b*) on June 30, 1910? (*Illinois, May*, 1911.)

31. W. H. Jones discounts a personal note for \$10,000, six months at 6 per cent. Show the effect of this transaction on the bank's statement, Jones accepting deposit credit for his note. (*Wisconsin, April*, 1918.)

32. While examining a bank you find that many indorsed notes have been extended beyond their original dates. Is this a good practice? Name at least two methods for guarding against any dangers arising from it. (*Florida, July*, 1909.)

33. In making an audit of a large bank where many of the bills discounted are in the form of demand notes upon which partial payments of principal and interest are permitted to be made, and where in many instances the customer, as he hands in his check, does not wait to see an indorsement of the payment actually made at the time by the bank employee, how would you assure yourself that one of the entries covering such partial payments was held over until the next day, while the check or currency might be slipped into the teller's cash? (*Illinois, December*, 1907.)

ACCOUNTS

34. Give the different accounts usually in use in banks. (*Pennsylvania, November*, 1904; *California, November*, 1916*; *Maryland, December*, 1917.*)

35. Explain the difference between the bookkeeping of a bank and a manufacturing concern, and the reasons for such difference. (*Pennsylvania, November*, 1906.)

AUDITING

36. State with reasonable fullness the various steps you would take in a detailed audit of a bank. (*New York, June*, 1897*; *New York, December*, 1897*; *Pennsylvania, November*, 1900*; *Pennsylvania, May*, 1902*; *Pennsylvania, May*, 1903*; *New York, January*, 1904*; *California, June*, 1904*; *New York, June*, 1904*; *Pennsylvania, November*, 1904*; *New Jersey*, 1904–1909*; *Illinois, May*, 1905*; *Ohio, December*, 1908*; *Maryland, January*, 1909*; *Washington, March*, 1909*; *Florida, July*, 1909*; *Virginia, November*, 1910*; *Massachusetts, April*, 1911*; *Washington, May*, 1911*; *New York, June*, 1911*; *Michigan, December*, 1913*; *Colorado, December*, 1913; *Delaware, June*, 1915*; *Washington, June*, 1915*; *New York, June*, 1915*; *Kansas, May*, 1916*; *California, May*, 1916*; *North Carolina, June*, 1916*; *Ohio, November*, 1916; *Illinois, December*, 1916*; *West Virginia, May*, 1917*; *Pennsylvania, November*, 1918*; *Virginia, November*, 1918*; *North Carolina, November*, 1918*; *West Virginia, May*, 1919*; *North Carolina, September*, 1921*; *North Carolina, May*, 1922.*)

37. Name some of the main features in an audit of a bank. (*North Carolina, August*, 1917.)

38. You are consolidating the accounts of two banks. How and at what values would you set up the municipal and other bond investments on the new books? (*California, June*, 1917.)

39. How would you discover and subsequently prevent defalcations if the teller of a mail desk in a bank absorbs remittances from certain customers and covers same on subsequent days with remittances of other customers? (*California, May*, 1916.)

40. A teller is found to be short in his cash. He has been in the position for a period of three years and has a daily record of cash on hand. His bond of suretyship antedates the discovery of the shortage by a period of six months, and it contains a clause that the surety shall not be liable for a shortage existing at the date the bond became effective. You are employed by the surety to ascertain if the shortage falls within the period of the bond.

What steps would you take? Do you think that you would be successful? (*Rhode Island, December*, 1907.)

41. In auditing the books of a bank, you find that 80 per cent of the depositors verify their balances. Why should this be considered satisfactory from an auditor's point of view? What is the risk and why not secure verification of all accounts? (*New York, January*, 1914.)

42. (*a*) How would you vouch charges to board fees in a bank audit? (*b*) State all the reasons for an audit confirming collateral loans by correspondence with the borrowers. (*Pennsylvania, November*, 1913.)

43. In making a bank examination would you commence at the start of the business day or at the conclusion of the business day? Give reasons. (*New York, June*, 1909.)

44. In auditing a private banking institution, how would you ascertain the amount of checks that have been charged to depositors' accounts, but not presented for payment? (*New York, June*, 1900.)

45. In examining the affairs of a private country bank it is ascertained that no record of certificates of deposit has been kept except in the general ledger. It also appears that partial payments have been occasionally made on certain certificates which are still in the hands of the depositor.

How would you proceed to determine the liability of the bank with respect to certificates of deposit outstanding? (*Illinois, December*, 1907.)

46. (*a*) State how you would inform yourself as to the value, (*b*) state how you would classify, and (*c*) state how you would report loans and discounts of a bank. (*Florida, July*, 1909.)

47. Is it the duty of an auditor of a bank actually to inspect the securities representing the bank's investments? If so, why? (*New York, June*, 1899; *New York, February*, 1910; *New York, January*, 1918.)

48. Present a short certificate which the officials of a state bank which you have audited can use in their published financial statement. (*Pennsylvania, November*, 1918.)

49. Write a brief report stating the results of the examination of a bank. (*Ohio, December*, 1908.)

50. What assets and liabilities of a bank would you seek to verify by correspondence? (*Illinois, December*, 1916.)

51. You are called upon by the president of a small national bank to make an audit and examination of the bank. You are advised by the president that he has reason to believe that the cashier is living beyond his means and that, so far as the president knows, he has no other source of income than his salary at the bank. An auditing committee from the board of directors has made an examination of the assets and liabilities and has reported that everything is in order.

While the deposits have increased in size very much during the past year, the earnings have apparently been at a standstill. The president is of the opinion that this result is due to the fact that the method of handling the discounts on notes has been changed during the year in accordance with instructions from the Comptroller of the Currency.

You are granted the privilege of making such an examination as you desire. The president has, however, requested that the cost be kept as low as possible.

State the manner in which the assets and liabilities would be verified; also the income and expenses, stating particularly the manner in which the various classes of income would be handled, including different ways in which tests of accuracy might be employed; also the purposes of the tests. (*Pennsylvania, November*, 1919.)

52. The following is the balance sheet of the Red Cedar National Bank as obtained from its books at the close of business on July 21, 1913:

RESOURCES

1. Loans and Discounts	$1 835 344.06
2. Overdrafts	1 812.37
3. U. S. Bonds to Secure Circulation	250 000.00
4. U. S. Bonds to Secure U. S. Deposits	245 000.00
5. Premium on U. S. Bonds	12 600.00
6. Bonds, Securities, Etc.	205 285.37
7. Banking House Furniture and Fixtures, Etc.	64 599.40
8. Due from Banks and Bankers	260 367.19
9. London Southwestern Bank, London, Eng.	21 243.08
10. Due from Approved Reserve Agents	216 323.24
11. Checks and Other Cash Items	41 705.96
12. Exchanges for Clearing House	99 589.55
13. Notes of Other National Banks	2 855.00
14. Fractional Currency, Nickels and Cents	495.71
15. Lawful Money Reserve in Bank	261 112.90
16. Redemption Fund with U. S. Treasurer	12 500.00
Total	$3 530 833.83

LIABILITIES

17. Capital Stock Paid in	$ 300 000.00
18. Surplus Fund	250 000.00
19. Undivided Profits, Less Expenses, Etc.	42 287.65
20. Circulating Notes Outstanding	236 475.00
21. Due to Banks and Bankers	609 799.40
22. Dividends Unpaid	1 712.50
23. Individual Deposits Subject to Check	1 551 457 63
24. Demand Certificates of Deposit	97 792.78
25. Time Certificates of Deposit	85 942.06
26. Certified Checks	12 062.25
27. Cashier's Checks	96 192.43
28. U. S. Deposits	247 112.13
Total	$3 530 833.83

Describe briefly what the various items of resources and liabilities set forth in the foregoing balance sheet consist of, and supposing that you were asked by the directors of this bank to verify its balance sheet on July 21, 1913, the verification you would expect to make of the various items.

Before rendering your report upon this examination you would have received, in response to a cabled request for the same, an account current

from the London Southwestern Bank, London, England, showing a credit balance on its books in favor of the Red Cedar National Bank on July 21, 1913, of £4,668-17-3.

Would the account current received from the London Southwestern Bank show the correct status of that account, in your opinion? What further verification, if any, could you make of it? (*Washington, November*, 1913.)

53. You are called upon by the directors of a national bank to make an audit of the books, accounts, and records of the bank for the following purposes, namely:

(*a*) To determine whether the income has all been accounted for.

(*b*) To advise the board as to whether the expenses of the bank are proper and are normal considering the amount of business transacted, etc.

(*c*) For the purpose of installing such a simple cost system as will enable the bank officials to know the profitableness or unprofitableness of the various departments; also for the purpose of being able to determine the profitableness or unprofitableness of the account of any customer at any time.

Please advise the steps you would take to determine the fact that all income had been accounted for; also the fact that the expenses were proper and in order and were either normal or abnormal in amount. Also outline the steps that you would take to determine the most practical and simple cost system for this bank and the general plan of this system and methods which you would recommend to be installed, keeping in mind the fact that the bank will not be willing to increase their expenses to any large extent.

Submit your entire answer in report form. (*Pennsylvania, November*, 1916.)

54. The report to the Comptroller of the Currency by the Blank National Bank on July 15, 1906, and again on July 20, 1907, showed as follows:

Resources

	June 15, 1906	July 20, 1907
Loans and Discounts	$3 551 140 20	$3 670 785.13
U. S. Bonds to Secure Circulation and U. S. Deposits	547 000.00	450 000.00
Premium on U. S. Bonds	13 000.00	12 000.00
Bonds, Securities, Etc.	370 244.25	410 570 75
Banking House, Furniture, Etc.	70 694.16	129 198.80
Due from Banks and Bankers	613 753.18	520 734 39
Royal Bank of Dublin, Ireland	36 215 48	42 486.15
Due from Approved Reserve Agents	537 456.91	472 646 47
Checks and Other Cash Items	24 247.54	83 411.83
Exchanges for Clearing House	281 933 18	199 179.10
Notes of Other National Banks	2 850.00	200 00
Fractional Currency, Etc.	495.55	1 974.61
Lawful Money Reserve in Bank	411 218.15	522 225.80
Redemption Fund with U. S. Treasurer	20 250.00	24 250.00
Total	$6 480 498.60	$6 539 663.03

LIABILITIES

	June 15, 1906	July 20, 1907
Capital Stock Paid in	$ 600 000.00	$ 600 000.00
Surplus Fund	500 000.00	550 000.00
Undivided Profits, Less Expenses, Etc.	115 754.47	109 566.46
National Bank Notes Outstanding	408 000.00	400 400.00
Due to Banks and Bankers	956 437.76	1 119 598.80
Individual Deposits Subject to Check	3 463 436.50	2 802 915.26
Certificates of Deposit	33 665.00	15 585.56
Certified Checks	6 226.71	4 124.50
Cashier's Checks Outstanding	142 978.16	402 472.45
U. S. Deposits	144 000.00	45 000.00
Bonds Borrowed	110 000.00	
Notes and Bills Discounted		490 000.00
Total	$6 480 498.60	$6 539 663.03

Accounts current received from the Royal Bank of Dublin show a credit balance in favor of the Blank National Bank on June 15, 1906, of £7,624-8-4, and on July 20, 1907, of £9,337-14-6.

(*a*) You are retained by the board of directors of the bank to make an examination on July 20, 1907, and to make an audit in connection therewith of the accounts from June 15, 1906. State how you would propose to carry out these instructions, describing your process in the order in which you think the several steps should be taken, and discussing carefully each item shown on the foregoing statements, together with such other accounts appearing in connection with your answer to part of this question as you think should be examined.

(*b*) Do the ledger balances against the Royal Bank of Dublin show the correct status of this account? How would you prove that they do, and if you found the balances stated above to be wrong, what entry would you make to correct?

(*c*) Describe more fully the liability ledger (or what is known in some banks as the credit ledger and in others as the line ledger) and state whether you think it should prove with any general ledger account to be kept by single entry purely. If the former, show how you would accomplish your purpose.

(*d*) From the foregoing and your knowledge of banking, outline a system of accounts suitable for the Blank National Bank, describing, in sufficient detail to indicate your understanding, the principal books and blanks used in the several departments, but showing no forms. (*Pennsylvania, November*, 1907.)

55. In making a quick audit of a bank for a suspected embezzlement, what would be your mode of procedure? (*Pennsylvania, May*, 1902;* *Maryland, January*, 1909.)

56. In auditing a bank, how would you verify:

(*a*) Items in transit? (*Michigan, December*, 1906.*)

(*b*) Certificate of deposit? (*Michigan, December*, 1906.*)

(*c*) Collateral securities to loans? (*Michigan, December*, 1906.*)

(d) Securities owned? (*New York, June*, 1899*; *New York, June*, 1906*; *Illinois, May*, 1915*; *Delaware, June*, 1915.*)

(e) Loans and discounts? (*New York, June*, 1906*; *Illinois, May*, 1915*; *Delaware, June*, 1915.*)

(f) Cash on hand? (*Illinois, May*, 1906*; *New York, June*, 1906*; *Illinois, May*, 1915.*)

(g) Clearing house items? (*Illinois, May*, 1915.*)

(h) Deposits? (*Washington, September*, 1907*; *Illinois, May*, 1915*; *North Carolina, June*, 1916.*)

(i) Cashier's checks? (*Illinois, May*, 1915.*)

(j) Bills receivable? (*Washington, September*, 1907*; *Delaware, June*, 1915.*)

(k) Balance due to and from other banks? (*Washington, September*, 1907*; *North Carolina, June*, 1916.*)

(l) Interest earnings? (*Washington, September*, 1907.*)

57. In auditing the books of a large bank, what method would you adopt to expedite the audit of the clearing house sheet for the day your audit began? (*New York, January*, 1915; *Indiana, November*, 1917.)

58. In auditing a bank, what action should the auditor take to facilitate the work of the loan clerk's department while the auditing of the loans is in progress? (*New York, January*, 1917.)

59. What recommendations would you make for preventing fraud in the following departments of a bank: (a) depositors' accounts; (b) loans; (c) revenue and expense accounts? Discuss fully your recommendations and give the reasons in support of them. (*Pennsylvania, November*, 1912.)

60. How would you verify bills discounted for customers in auditing the accounts of a bank? (a) Those in hand at the date of the balance sheet? (b) Those rediscounted? (*Maine, June*, 1914.)

Clearing House

61. What violations of law would you look for in an examination of the loans and discounts of a national bank? (*North Carolina, May*, 1922.)

62. It frequently occurs that an accountant finds when examining a bank that the latter is holding securities in trust for a correspondent. If, under such circumstances, you were auditor, what precautions would you take to satisfy yourself that such securities held in trust were not being used as collateral for a loan in which an officer of the bank was secretly interested? (*New York, June*, 1923.)

63. Is there any difference in the usual methods of treating discount and premium on investment securities owned by a national bank and a manufacturing corporation? (*Maryland, November*, 1923.)

64. State your procedure in making an examination of a state bank. In what particular essentials would the audit differ in the case of a state bank belonging to the Federal Reserve System; a national bank; savings bank; trust company? (*Virginia, November*, 1923.)

65. In examining the mortgage loans of a bank, what papers and records would you examine and to what points would you give particular notice? (*Utah, June*, 1920.)

66. Set forth in detail and in order of importance the special instructions that should be given an assistant who has charge of the audit of the books of a bank. (*New York, January*, 1903.)

67. In the examination of a bank how, when, and to what extent would you verify: (*a*) loans and discounts; (*b*) outstanding transit items; (*c*) investments; (*d*) depositors' accounts? (*North Carolina, November*, 1923.)

68. Briefly describe the purpose, and operating and accounting procedure involved, of a clearing house. (*Pennsylvania, November*, 1907*; *Maryland, January*, 1909*; *Washington, May*, 1910*; *California, May*, 1916; *Michigan, December*, 1916*; *Pennsylvania, November*, 1917.*)

QUESTIONS FOR CHAPTER VIII

TRUST COMPANIES

General

1. Give the different accounts usually in use in trust companies. (*Pennsylvania, November*, 1904.)

2. How are the two different kinds of surplus usually created in a trust company? (*Massachusetts, October*, 1914.)

3. Give the names and purposes of the general books of a trust company doing a banking business, together with such auxiliary books generally used, and any suggestions as to improvement or addition thereto. (*Pennsylvania, May*, 1906.)

4. The Blank National Bank has obtained permission to establish a trust department. You are called upon to organize the accounting necessary to carry on the business which will arise in this department. A complete line of trust business is to be engaged in. Outline in detail the accounting records which you will install; also their relation to the other records of the bank, and submit report thereon. (*Pennsylvania, November*, 1920.)

5. Describe and illustrate by condensed forms the books, etc., required to record to the best advantage the operation of the trust department of a large trust company. (*Pennsylvania, November*, 1913.)

6. Prepare a plan of depositors ledger for a trust company that allows 2 per cent interest on daily balances. Incorporate in this plan the following particulars exemplifying X's account:

Deposits: July 1, 1911, $5,000; October 1, $50; November 1, $60; April 1, 1912, $50; May 1, $60; July 1, $4,807.78; July 1, $2,045; August 1, $100; November 1, $120.

Withdrawals: July 1, 1911, $4,245; July 1, 1912, $7,103.30. (*New York, June*, 1913.)

7. The Pioneer Trust Company engages you to revise its system of accounting with a view to adjusting its balance sheet daily, to include accruing earnings and expenses. With the following statement of condition as a guide, indicate what procedure you would adopt to change the books from a purely cash to the accrual basis. Let it be understood that the loans and other securities as well as deposits bear various rates of interest. Would you attempt to accrue all classes of earnings and expenses?

Resources		Liabilities	
Collateral Loans	$ 609 209.87	Capital	$ 500 000.00
Loans on Real Estate	1 313 827.36	Surplus	500 000 00
Bonds	1 247 895.76	Undivided Profits	364 770.51
Bonds and Mortgages with State Treasurer	208 100.00	Trust Deposits	3 216 205.52
Advances to Trusts	39 866.52	Accrued Taxes	39 640.08
Cash and Due from Reserve Agents	1 201 716.60		
Vaults, Furniture, and Fixtures	Nothing		
	$4 620 616.11		$4 620 616.11

(*Michigan, December*, 1915.)

8. The Safe Trust Company has the following departments: banking; corporate trust; individual trust; registration and transfer; and safe deposit.

(*a*) Describe the various classes of business conducted in (1) the corporate trust department and (2) the individual trust department.

(*b*) Outline the accounting system you would recommend for the business of these two departments (assuming that the gross assets in each were $75,000,000 and $30,000,000, respectively) and describe the principal books you think should be used.

(*c*) Prepare a balance sheet as of September 30, 1908, for these two departments, showing captions but omitting amounts. (*Pennsylvania, November*, 1908.)

9. State briefly the sources of income of trust companies. (*Pennsylvania, May*, 1902*; *Pennsylvania, November*, 1907; *Maryland, January*, 1909.*)

10. The trust department of the United Trust Company deposits, pending distribution of the same, the income accruing to beneficiaries under various trusts, in one account in the Twentieth National Bank, and is allowed interest on its daily balance. What disposition would you advise to be made by the trust company of this interest, and how would you effect it? (*Massachusetts, June*, 1912.)

Securities

11. If you are called upon to audit the accounts of a trust company whose principal investment may be mortgages, how could you prevent the introduction of canceled or fictitious mortgages? (*Pennsylvania, May*, 1900.)

12. A financial institution has a large amount of capital invested in mortgages which are constantly changing. Suggest a plan for confirming by averages, and without a complete detailed examination of every account, the amount of income on this investment taken into Profit and Loss account for a year under examination. (*American Institute of Accountants, November*, 1918.)

13. The market value of the investments of a trust company has fallen considerably, while the company has earned enough income to pay the usual dividend. How should you deal with this position of affairs in auditing the annual accounts? (*Michigan, June*, 1908.)

14. In auditing trust companies, holding funds of a decedent's estate, what are your duties as to the investments made from said funds? (*Pennsylvania, May*, 1902.)

15. What instructions would you give to a junior accountant to whom you had entrusted the audit of the account, Investment in Bonds and Mortgages, appearing on the books of a trust company? (*New York, June*, 1912.)

16. How would you verify the Investments in Bonds and Mortgages account appearing on the books of a trust company? (*North Dakota, July*, 1916.)

17. Banks often hold securities in trust for other banks. What precaution should be taken by an auditor to make sure that such securities are not being used as collateral for a loan in which an officer of the holding bank is secretly interested? (*New York, June*, 1917.)

AUDITING

18. Describe the steps necessary to make a complete audit of a trust company. (*Pennsylvania, November*, 1900*; *Pennsylvania, May*, 1903*; *Illinois, May*, 1904*; *Pennsylvania, May*, 1905*; *New York, February*, 1909*; *Massachusetts, June*, 1910; *Massachusetts, June*, 1912*; *Massachusetts, October*, 1917.*)

19. State fully the duties of an auditor as to a trust estate in the hands of a trust company or an individual. (*Pennsylvania, May*, 1903.)

20. Describe the audit of the coupon clerk's department in a trust company. (*New York, January*, 1917.)

21. Describe an audit of a trust company doing a banking business, acting as trustee for estates, trustee for bondholders of a corporation, and issuing title, surety, and fidelity bonds, giving your views as to how you would arrive at the liability of the company as to the title, surety, and fidelity bonds. (*Pennsylvania, November*, 1906.)

22. A certain trust company, doing, in addition to a substantial banking business, a large real estate, insurance, and title business, has called upon you to make an examination for the purpose of determining not only the correctness of the financial status of the company, but also the relative efficiency of its various departments.

Explain in detail the manner in which you would audit the various departments and what recommendations, if any, you would make in respect to the increasing of the efficiency of the operations of each department. (*Pennsylvania, November*, 1917.)

23. The A Trust Company has an active trust department handling hundreds of different trusts. The income from various trusts is deposited by the trust department to the credit of the beneficiaries in the banking department. The banking department, in addition to holding the securities owned by the trust company itself, as well as the securities held as collateral for its collateral loans, receives and holds securities for the convenience and safekeeping of its customers.

In making an audit of the banking department, assuming that no written verification is to be made of the depositors' accounts, would you consider it any part of your duty to examine or investigate the accounts of beneficiaries of trusts administered by the trust department? If so, in what way?

Where no written confirmation is made of the depositors' accounts, what verification, if any, would you make thereof? What verification, if any, would you make in respect to the securities left for safekeeping? What recommendations would you make, if any, as to the handling of the interdepartmental transactions, also the securities left for the convenience and the safekeeping of customers? *(Pennsylvania, November,* 1921.)

SAVINGS BANKS

General

24. What are the functions of each and what are the chief differences between: (*a*) a national bank; (*b*) a state bank; (*c*) a savings bank; (*d*) a trust company? *(Pennsylvania, May,* 1902*; *Washington, May,* 1910*; *Washington, June,* 1912*; *California, May,* 1916.)

25. What are the principal differences in the incorporation and the public examination of a national bank and of a trust company doing a banking business? *(Maryland, January,* 1909.)

26. What responsibilities do the board of directors of a savings bank assume, under the laws of Pennsylvania, as to a deficit? *(Pennsylvania, November,* 1909.)

27. State briefly the sources of income of savings banks. *(Pennsylvania, November,* 1907.)

28. What is meant by amortization of bonds and investments in a savings bank, and how is it effected? *(California, November,* 1916.)

Auditing

29. Describe the steps necessary to make a complete audit of a savings bank. *(New York, January,* 1900; *New Jersey,* 1904–1909*; *Massachusetts, June,* 1910; *Massachusetts, April,* 1911*; *New York, June,* 1911; *Massachusetts, October,* 1915*; *Massachusetts, October,* 1916*; *Kentucky, May,* 1917*; *North Dakota, July,* 1919.*)

30. What, in your opinion, would, in a bank audit, be a satisfactory method of verifying individual balance savings accounts? *(Washington, September,* 1907.)

31. In reporting to the Bank Commissioner on the condition of a corporation borrowing from savings banks, state briefly the extent to which you would verify each item usually found in the balance sheet. *(Massachusetts, April,* 1911.)

32. Your visit as auditor of the Iroquois Savings Bank of Pittsfield happens to be concurrent with that of the examiners from the Bank Commissioner's office. State in detail what modifications, if any, you would feel justified in making in the scope and thoroughness of your audit. *(Massachusetts, June,* 1912.)

33. The "system of internal checking" of a savings bank calls for regular observance by the board of investment, whether the records of collateral received, and changes thereof, on loans, accord with the votes of the board. Under these conditions, and in the case of loans on collateral security, state

(*a*) whether you would write to each borrower to send to you the details of the note, together with a list of the collateral deposited therewith; (*b*) whether you would ascertain the market value of the collateral; (*c*) what action you would take if you thought that the character of the collateral was inferior, or that the margin was insufficient. State (*d*) whether you would restrict the extent of your general audit because of a high degree of excellence in the "system of internal checking;" and (*e*) the reasons supporting your answers. (*Massachusetts, June*, 1912.)

34. If you were auditing the books of a savings bank at the close of its fiscal year, how would you verify the cash book entries for loans and deposits which were made and repaid during the year? (*Massachusetts, June*, 1913.)

35. Having been selected by the auditing committee of a Massachusetts savings bank, and your selection approved by the Bank Commissioner, you will receive general instruction from the Bank Commissioner's office to meet the requirements of an audit. The instructions are issued under the following captions:

Assets: (1) Bonds and stocks; (2) securities acquired in settlement of indebtedness; (3) loans; (4) real estate by foreclosure and in possession; (5) real estate for banking purposes; (6) Expense account; (7) state tax, taxes, and insurance paid on mortgaged properties, premiums, furniture and fixtures, Suspense accounts, other assets; (8) bank accounts; (9) cash.

Liabilities: (10) Depositors' accounts; (11) guaranty fund; (12) Profit and Loss; (13) interest, discount, rent, or other income; (14) cash book and journal.

From your own knowledge of the requirements of such an audit, explain the work to be done under captions (1), (3), (8), (9), (10). (*Massachusetts, October*, 1914.)

QUESTIONS FOR CHAPTER IX

STOCK BROKERS

General

1. Define: (*a*) the responsibilities of a broker, (*b*) the theory of accounts applied to his activities. (*New York, June*, 1917.)

2. Describe the functions and method of operation of a stock exchange clearing house, and point out the difference between a stock exchange clearing house and a bank clearing house. (*Pennsylvania, November*, 1908.)

3. Does the theory of accounts as applied to a stock brokerage business differ in principle from the theory of accounts as applied to the business of a trader? Explain. (*New York, January*, 1917.)

4. Describe the treatment in the accounts of a stock broker of the following: (*a*) stocks long; (*b*) stocks short; (*c*) commissions and interest charges; (*d*) stocks deposited by customers as margin collateral; (*e*) preparation of a balance sheet, taking into consideration market value of stocks held on margin. (*California, November*, 1916.)

5. Due to the increased volume of business, the A, B, and C brokerage firm has found that, although they have increased their bookkeeping staff,

they have been unable to keep up with the current work. The bookkeeping system has been in use for the past ten years. You are asked to look over the present system and to make suggestions for the facilitating of the current work, particularly the calculating and handling of the monthly interest charges, which are based on the customers' current daily balances.

Advise the manner in which you would recommend the customers' accounts be handled; also any other suggestions you would make for the facilitating of the current work, setting forth your own premises as to the system that is in operation at the present time. (*Pennsylvania, November*, 1919.)

6. Discuss fully the items that would appear in the balance sheet of a stock and bond brokerage firm at the close of the fiscal period. In closing the books at the end of the period, what items should receive special consideration and adjustment in order that the accounts may reflect the true financial condition and the current results of operation? (*Pennsylvania, November*, 1913; *Maryland, October*, 1919.)

7. Prepare an accounting chart for a brokerage business. (*North Carolina, November*, 1919.)

8. List the books of account and the principal impersonal accounts of a stock broker. (*Illinois, December*, 1907.)

9. Give, without figures, the form of an income and expense statement of a stock broker, showing titles of accounts you would expect to find. (*American Institute of Accountants, November*, 1922.)

10. A and B are a New York stock exchange firm with offices in several cities. Describe in detail the manner in which the operations of the branch offices would be controlled in the general office; also the manner in which the general office accounts would be kept in the branch office accounts. (*Pennsylvania, November*, 1920.)

11. Why is it customary in stock brokers' or Board of Trade accounting to omit to charge interest on short sales made for their customers? (*Illinois, December*, 1907.)

AUDITING

12. State what you consider to be the most important special problems arising in one of the following classes of audits and how you would deal with such problems, as stock brokers. (*Illinois, May*, 1905*; *New York, June*, 1909*; *American Institute of Accountants, June*, 1917; *Pennsylvania, November*, 1918.*)

13. You are engaged by a stock broker, who does an extensive commission business, to make a complete audit of his books and records. Submit a report of your audit, together with the balance sheet based on market values, using your own figures. (*Pennsylvania, November*, 1918.*)

14. State briefly how you would verify stocks long and short in a broker's customers' accounts. (*California, November*, 1916.*)

15. In making an audit of the accounts of stock brokers, how would you verify the stocks and registered bonds in process of transfer? How, in preparing their balance sheet, would you determine the customers' accounts as to whether they should be classed as good, doubtful, or bad?

Write a report from 100 to 200 words upon such an examination. (*Pennsylvania, May*, 1906*; *Michigan, June*, 1910.)

16. In auditing the accounts of a firm of stock brokers, how would you verify the accounts relative to bonds, stocks, or other securities owned by the firm or carried for account of customers or others? (*Pennsylvania, May,* 1906*; *Pennsylvania, November,* 1908; *Michigan, June,* 1910.*)

17. How would you proceed in making an audit of a stock broker who also does a banking business? Give full particulars, with an illustration, using your own figures. (*Pennsylvania, May,* 1905.)

18. Set forth in detail and in order of importance the instructions you would give an assistant in the audit of a stock broker. (*New York, June,* 1911.)

19. State in detail the work it is necessary to do the first night on the accounts of a firm of stock brokers, in order to make an audit satisfactory to yourself, and allow the routine work of the office to go on the next morning. (*Massachusetts, October,* 1914.)

20. To what matters should an auditor first direct his attention in auditing the accounts of a stock broker? Why? (*New York, January,* 1914.)

21. State briefly your procedure in the audit of the books and accounts of a large stock broking establishment having offices in two cities. (*California, June,* 1917.)

22. In the examination of the accounts of a stock broker who is a large borrower from different banks by means of promissory notes which he has issued from time to time, outline a method for determining at any time the particulars of the collatoral placed with each note, change in which occurs frequently, and the collateral itself boing in some cases the individual property of the stock broker, in some cases entirely the property of his clients, and more generally such securities as have been bought on margins for the clients. (*Illinois, December,* 1907.)

23. Give particulars of a course to be followed in making a detailed audit of the accounts of a grain brokerage house. (*Illinois, May,* 1905.)

24. What would be your first duty in auditing the accounts of a stock broker? In the course of the audit you find a certificate in the name of an unknown person whose signature is missing; what would you ask for to rectify the omission? (*New York, June,* 1915.)

25. In the course of an audit of an investment and brokerage corporation you find that the directors have written up the valuo of some of the securities, which they contend is in harmony with current market values. The accounts show that the dividend proposed to be paid has not been earned unless the increment in value referred to is included as a profit. What is your view of the proposed procedure of the directors? If you concur with their proposed action, state your reasons; and if not, state the procedure which, as auditor, you would follow. (*Ohio, November,* 1917.)

26. Set forth in detail and in order of importance the special instructions which should be given an assistant who has charge of the audit of the books of a stock broker. (*New York, January,* 1903.)

27. A partner in a stock brokerage firm, not active in the management, suspects his firm of conducting a bucket shop. He secures the following balance sheet from the firm's books, and asks your advice. He has previously made an examination of customers' accounts and found all accounts, both long and short, amply margined at 20 per cent. The market has been rising steadily for nearly a year. What would be your advice, and why?

Balance Sheet Items

Cash	$ 400 000
Due from Customers, Long	2 500 000
Due from Brokers for Stock Borrowed	25 000
Securities on Hand	75 000
Firm Trading Accounts, Long	450 000
Due to Customers, Short	375 000
Due to Brokers for Stock on Loan	150 000
Firm Trading Accounts, Short	2 850 000
Capital, Surplus, and Profit and Loss	75 000

(*American Institute of Accountants, May*, 1923.)

QUESTIONS FOR CHAPTER X

BUILDING AND LOAN ASSOCIATIONS

General

1. Under the laws of Michigan a building and loan association has been incorporated with an authorized capital of $1,000,000. Stock is divided into two classes, instalment and full-paid stock, par value of each $100 per share. Instalment stock is to be paid for at the rate of 60 cents per share per month, of which 10 cents per share may be devoted to operating expenses, etc. No part of the profits can be used for expenses of the association. Estimated time of the maturity of the instalment stock based on the earning power of the loaning feature of the association is 110 months. The nine directors decide to advance $1,000 each to meet the expenses and develop the business and the 10 per cent of the expense deductions is to be set apart each year for the payment of this $9,000.

The secretary reports the sale of 1,000 shares of instalment stock on which the first month's payment of 60 cents has been made. He also reports the sale of 500 shares of full-paid stock for which he received the money.

Give the proper books for conducting the business of this association and for keeping its accounts and make the opening entries. (*Michigan, December*, 1906.)

2. Explain the books in general use in a building society and their uses. (*Pennsylvania, November*, 1900; *Illinois, May*, 1904.*)

3. State briefly the source of income of building associations. (*Pennsylvania, November*, 1907.)

4. State briefly the primary objects of building and loan companies. What protection does the state afford such companies?

To whom are the funds of buildnig and loan companies loaned?

Is it customary and necessary to keep an independent ledger account with each member, showing his payments of dues, etc., and dividends, etc.? And if not, why not? (*New Jersey*, 1904–1909.)

5. Name the principal elements of the laws relating to building and loan associations. (*North Carolina, August*, 1917.)

Accounts

6. Give the different accounts usually in use in building associations. (*Illinois, May,* 1904*; *Pennsylvania, November,* 1904; *California, November,* 1916.*)

Distribution of Profits

7. Explain the manner, in a building society, of arriving at the profits of each series of stock issued. (*Pennsylvania, November,* 1900.*)

8. Under what rule would you equalize the stock of a building and loan association consisting of different plans and different ages of payments, so as to preserve the mutuality of participation? (*North Carolina, November,* 1918; *North Carolina, June,* 1919; *North Carolina, September,* 1919*; *North Carolina, September,* 1921.*)

9. A building and loan association has the following classes of instalment stock in force: payments 25 cents per week; payments $1 per month; payments $10 per annum.

State how you would equalize these classes of stock in the process of a mutual apportionment of the profits. (*North Carolina, June,* 1916.)

10. If a building and loan association earns 6 per cent per annum, how many weeks will it require to mature the stock? When does building and loan stock mature? (*North Carolina, May,* 1923.)

11. Describe the following plans of distributing profits of a building and loan association: (*a*) Dexter plan, (*b*) partnership plan.

Apply the above plans to an association operating from January 1, 1917, to December 31, 1921, having outstanding five series, the monthly dues being $1 per share payable on the first of each month, and the outstanding shares of each series and the net profits for each period being:

	Shares	Net Profit
First series, Dec. 31, 1917	40	$ 30
Second series, Dec. 31, 1918	30	100
Third series, Dec. 31, 1919	50	250
Fourth series, Dec. 31, 1920	50	500
Fifth series, Dec. 31, 1921	40	1 000
		$1 880

Which method would you consider more equitable, and why? (*Pennsylvania, November,* 1921.)

Auditing

12. State your method of procedure in auditing the accounts of a building and loan association. (*Pennsylvania, May,* 1903*; *New Jersey,* 1904–1909*; *Michigan, December,* 1906*; *Virginia, November,* 1910; *Pennsylvania, November,* 1914*; *North Carolina, June,* 1916*; *North Carolina, November,* 1918*; *North Carolina, May,* 1922.*)

13. State briefly what, in auditing the affairs and conditions of a building and loan association, would be the scope of your examination. (*California, June,* 1904; *Washington, May,* 1911.)

14. What other records are necessary to examine, if any, than those kept by the secretary and treasurer of a building and loan association to

prove the financial condition, also the correctness of the books of said association? (*Michigan, November*, 1907.)

15. In auditing the accounts of a building and loan association, what is required to be done to warrant a certification by the auditor? (*New York, January*, 1914.)

16. If you are called upon to audit the accounts of a building and loan association whose principal investment may be mortgages, how would you prevent the introduction of canceled or fictitious mortgages? (*Pennsylvania, May*, 1900; *Maryland, January*, 1909.)

17. In auditing the books of a building and loan association, what method should be used in verifying (*a*) depositors' pass books; (*b*) mortgages held by the association; (*c*) the income? (*New York, June*, 1901.)

18. State detailed procedure in the audit of a building and loan association, laying especial emphasis upon the verification and the distribution of profits. (*California, November*, 1916.)

19. State briefly how you would verify par value of stock in a building and loan association. (*California, November*, 1916.)

20. If asked to certify to the correctness of a statement of a building and loan association, how would you proceed to prove the correctness of mortgage notes, paid-up stock, and current stock? (*Louisiana, May*, 1913.)

21. State what verification you would make of the amount paid in by building and loan stockholders. (*North Carolina, August*, 1917.)

QUESTIONS FOR CHAPTER XI

FIRE INSURANCE

1. Name the principal elements of the laws relating to insurance companies. (*North Carolina, August*, 1917.)

2. What is the difference between an insurance company that is known as a mutual company, and one that is known as a stock company? (*Pennsylvania, November*, 1906.)

3. How is the mutual fire insurance company organized in Pennsylvania? What is its executive organization and how is the latter erected and perpetuated? (*Pennsylvania, November*, 1906.)

4. A fire insurance company has gross assets, \$26,000,000; reinsurance reserve, \$14,000,000; gross liabilities, except capital, \$17,000,000; surplus over capital and all liabilities, \$7,000,000; capital, \$2,000,000. What is the loss-paying ability of above company, *i.e.*, surplus to policyholders? (*Massachusetts, October*, 1914.)

5. What books and records are essential to the use of the double-entry system in an insurance business? (*Michigan, July*, 1909.)

6. Give your theory of the accounting principles necessary to be considered in the preparation of an accounting system of a fire insurance company, and state your understanding of the purpose and manner of creating of a reserve for fire losses. (*Washington, November*, 1913.)

7. Name the usual classes of non-admitted assets that are required to be deducted in the financial statements of insurance companies. (*North Carolina, June*, 1916*; *North Carolina, November*, 1918; *North Carolina, June*, 1919.*)

8. Give a brief definition of coinsurance. (*Wisconsin, May,* 1916.)

9. Define: (*a*) reinsurance; (*b*) return premium; (*c*) recoveries. (*Washington, July,* 1917.)

10. What do you understand by the term "unearned premiums" in fire insurance, and how are they determined? (*Delaware, June,* 1915.)

11. For the purpose of establishing rates of general liability insurance, what three essential elements are necessary to determine the factor for expense loading? (*New York, January,* 1914.)

12. What examination should an auditor make with respect to fire insurance policies and their cost? What should he do if he finds that all premiums have been charged to expense when as vouched or otherwise entered to the credit of the insurance company broker? What risk or loss by fire on property on which no insurance is carried? (*New York, February,* 1909.)

13. As an auditor, to what extent would you charge yourself with responsibility for the accuracy both as to the facts and figures of securities held by an insurance company? (*Illinois, May,* 1913.)

14. A fire insurance company's assets include stocks and bonds that it carries at market price regardless of cost. Is this in accordance with your view? Give reasons. (*Maryland, January,* 1909*; *New York, June,* 1911.)

15. If you were called upon to make an examination of the affairs of an insurance company and find upon the ledger an investment account showing a debit balance of $250,000, how would you proceed to prove the correctness of same? (*Maryland, January,* 1909.)

16. State precautions that you would take in verification, requiring several days' work, of the securities of an insurance company, including both stocks and bonds in negotiable and non-negotiable form. (*New York, January,* 1911.)

17. Prepare a statement of assets and liabilities for a stock fire insurance company in the form required for submission to Insurance Departments, omitting figures. Attach your certificate as auditor, with such qualifications as you would deem necessary as the result of making an examination only. (*Pennsylvania, November,* 1918.)

18. Name some of the main features in an audit of a fire insurance company. (*North Carolina, August,* 1917.)

19. How would you proceed to audit a fire insurance company? (*New York, December,* 1897*; *California, June,* 1904*; *New Jersey,* 1904–1909; *Pennsylvania, November,* 1908*; *Washington, March,* 1909; *Washington, May,* 1911*; *North Carolina, June,* 1916.*)

20. Prepare a detailed program of a cash audit of a fire insurance company. (*Illinois, December,* 1918.)

21. What would be your procedure in making an audit of the head office of a fire insurance company? (*Washington, June,* 1915.)

22. The building of an insurance corporation valued at $500,000 is mortgaged for $300,000. The rental value of the portion occupied by the corporation is $3,500 a year, and there are sixty other tenants in the building. Mention such accounts as should be kept and state the class of transactions to be recorded in each. In what manner and to what extent would the building enterprise be included in the annual statement of the corporation? (*New York, January,* 1902.)

SIMILAR BUSINESSES

Fidelity Insurance

23. A fidelity insurance company has been organized to take over two smaller insurance companies which have been operating for some years. The systems of accounting of these two companies have been recognized as inadequate.

You are called upon to make an audit, and, upon completion of the purchase of the assets, you are asked to install an adequate system of accounting.

Outline the manner in which the assets and liabilities of these two companies, other than those found in all companies, will be verified, describing in particular the manner in which you would verify the fact that the insurance reserves of each of the companies are sufficient and that all liabilities are shown upon the books and records; also outline in report form, for the guidance of the accounting department of the new company, the system which you would install and place in operation. (*Pennsylvania, November*, 1919.)

Title Insurance

24. A title insurance company collects its fees for searches and insurance, on signing the contracts with the clients. The work to be done may extend over several months. Suggest a method of recording whereby the income may be spread over the period in which the expense is incurred. (*New York, June*, 1912.)

QUESTIONS FOR CHAPTER XII

LIFE INSURANCE

1. How would you deal in a life insurance company's accounts with premiums received, bearing in mind the fact that premiums are always paid in advance? Should you apportion them? Explain fully in your answer. (*Pennsylvania, May*, 1905*; *Michigan, July*, 1909.)

2. A has received notice from his life insurance company that a dividend of $9 has been declared on his policy. He elects to accept a "reversionary addition" of $15 to the principal of his policy, in lieu of a cash dividend. Journalize the transaction on the books of the insurance company. (*New York, June*, 1912.)

3. An income earner having been killed by a railroad train, suit is brought against the railway company, and counsel for the heirs engages you to calculate the present value of his life, giving you his age and his yearly earnings. How would you prepare your testimony? Are life insurance company tables, showing their prices for annuities, good evidence in such cases? Give reasons for your answer. (*Florida, July*, 1909.)

4. From what source does the surplus of a life insurance company arise, and state what insurance surplus actually is. (*Illinois, May*, 1905.)

5. What elements should be considered in making up a dividend in life insurance and what is meant by it? (*Delaware, June*, 1915.)

6. What do you understand by "policyholders" appearing in a statement of an insurance company? (*North Carolina, June*, 1916.)

7. How would you determine that an insurance company was not losing money on a certain form of life policy? (*California, June*, 1917.)

8. Explain how you would proceed to audit a life insurance company, and what books you would expect to find. (*West Virginia, May*, 1917.)

9. Name some of the main features in an audit of a life insurance company. (*North Carolina, August*, 1917.)

10. You are called upon to examine the books of a life insurance company. Explain fully how you will verify the fact that all securities carried on the books of account are duly accounted for, and your method of carrying out such verification? (*Illinois, May*, 1906.)

11. In the annual report of a life insurance company, what does a "reserve" mean; how is it arrived at; and how does it affect the results of the business? (*Pennsylvania, November*, 1909; *Delaware, June*, 1915.*)

12. What is involved in the verification of the reserve of a life insurance company? (*California, May*, 1916.)

13. Discuss the term "income and disbursements" as used on annual reports of life insurance companies furnished to various State Insurance Departments. What do non-ledger liabilities and non-ledger assets include in such reports? What dangers, if any, may be anticipated by a method of bookkeeping where certain liabilities and assets are not carried on the books of account? (*Illinois, May*, 1906.)

14. A life insurance company purchased from its agent for $7,500 all his interest in renewal premiums. How should this expenditure be treated on the books of the company? Explain fully. (*New York, January*, 1918.)

15. (*a*) Outline the revenue and expense accounts of a life insurance company and their proper treatment at annual closing periods. (*b*) In the annual report of a life insurance company to the Insurance Department of Pennsylvania, what is comprised under the captions: (1) non-ledger assets; (2) non-ledger liabilities? (*Pennsylvania, November*, 1912.)

16. You are called upon to make an audit of a life insurance company and to report your findings to the board of directors. State in what manner your report to the board of directors will differ from the reports rendered by the offices to the State Insurance Department. Also state in detail the manner in which you will verify the various assets and liabilities, including the securities, loans, real estate, agency balances, premiums in course of collection, policy contracts, commissions outstanding, dividends payable, and the various reserves other than the life insurance reserves.

In your report, you are requested to accept the certificate of the state as to the life insurance reserves. Upon the rendering of this report, however, you are asked to make an audit of the insurance reserves for the satisfaction of the board of directors. State in detail the manner in which you will audit the reserves, the steps you will take to control your own work, and the manner in which you will prove the mathematical accuracy of the same. What factors will you particularly watch? Also describe the method of calculating the reserve on some particular class of policy. (*Pennsylvania, November*, 1917.)

17. Is there any difference in the usual methods of treating discount and premium on investment securities owned by an insurance company and a manufacturing corporation? (*Maryland, November*, 1923.)

18. In examining the mortgage loans of an insurance company, what papers and records would you examine and to what points would you give particular notice? (*Utah, June*, 1920.)

ALLIED BUSINESSES

Real Estate and Insurance Agents

19. Prepare an accounting chart for real estate brokers. (*California, November*, 1916*; *North Carolina, November*, 1919.)

20. Prepare an accounting chart for an insurance agency. (*North Carolina, November*, 1919.)

21. Describe briefly the books of account and principal impersonal accounts peculiar to an insurance agent. (*Illinois, May*, 1904.)

22. A foreign agent of a life insurance company sends monthly the following data: a report showing his receipts and disbursements, with dates; vouchers supporting the disbursements; list of overdue premiums; a statement of his daily cash balances in bank, supported by a certificate from his bank as to his closing balances. How would you audit his report? (*New York, June*, 1912; *New York, June*, 1915.)

23. The business of the Y Fire Insurance Agency has increased very rapidly, due to the combination of several small businesses. A great deal of confusion has arisen in the calculation of commissions due various agents; also the balances due certain outside agencies, who have been exchanging business on a brokerage basis. You are called upon to outline a complete system of accounting for the agency. Submit your report in considerable detail; also rough copies of any forms you would use. (*Pennsylvania, November*, 1920.)

QUESTIONS FOR CHAPTER XIII

LAND DEVELOPMENT COMPANIES

1. In devising an accounting system for a real estate company selling a large tract of land in the shape of building lots, how would you provide for the ascertaining of the gross profit on sales from time to time? It is estimated that it will take from ten to fifteen years to sell the entire tract. (*Kansas, December*, 1915; *Missouri, December*, 1915.)

2. Prepare an accounting chart for a suburban land company. (*North Carolina, November*, 1919.)

3. X bought unimproved land, which he subsequently platted and sold. Considering that all municipal improvements were made subsequent to the date of X's purchase, indicate what accounts should be kept by X to show the activities of his investment correctly. (*Wisconsin, May*, 1916.)

4. Submit a skeleton balance sheet of a land company. (*California, June*, 1917.)

5. A land company is incorporated and purchases 50 acres of land, which it subdivides into blocks and lots. It then negotiates the sale of first mortgage bonds on the whole property, from the proceeds of which it makes improvements, after which it places the lots on the market for sale. Wherein do these bonds differ from those secured by a plant? (*Illinois, May*, 1907; *California, June*, 1917.)

6. On October 28, 1916, an audit of the accounts of a real estate company for the twelve months ended September 30, 1916, was commenced. What procedure should have been adopted to verify the asset, notes receivable, as at the date of the balance sheet? The company sells real estate for an instalment in cash and the balance in notes receivable; some notes receivable are collected when due, others are allowed to become past due, others are sold before maturity; notes not disposed of are frequently deposited as collateral for borrowed money pending their maturity. (*Illinois, December*, 1916.)

7. What contingent liabilities may be encountered and what steps would you take to ascertain their existence in a land corporation? (*California, May*, 1916.)

8. A real estate corporation buys a farm for suburban residence development. In addition it spends for (*a*) surveys; (*b*) construction of streets; (*c*) building of sewers; (*d*) advertising of lots; (*e*) salaries before and after completion of development work. To facilitate sales, every tenth lot selected for purchase is given away. Distinguish between charges to capital and revenue, in each case involving a bookkeeping entry. (*Massachusetts, October*, 1917.)

9. The Boon Realty Company purchases, subject to mortgage, three pieces of real estate, the first unimproved, the second partly improved and producing an income which, however, is insufficient to cover interest and taxes, and the third fully improved and producing a net revenue. What, in your opinion, is the correct method of apportionment as between capital and revenue, in each case, of expenditures for taxes and interest on mortgages? (*Washington, March*, 1909; *Washington, May*, 1911.)

10. Outline a program for a balance sheet audit with a test of operations for a suburban real estate development company. (*American Institute of Accountants, May*, 1920.)

11. Name some of the distinctive elements in an audit of real estate companies. (*North Carolina, June*, 1916; *American Institute of Accountants, June*, 1917*; *North Carolina, August*, 1917*; *North Carolina, November*, 1918*; *Illinois, December*, 1918.*)

12. If the state should pass a law placing all persons, partnerships, and corporations dealing in real estate under the supervision of the Banking Commissioner and you were appointed as head of a division having charge of them, what points would you instruct your inspectors specially to observe in making their audits? (*Michigan, June*, 1919.)

13. A land company places lots on the market for sale. Describe the journal entries you would expect to make on the sale of one of these lots sold on contract. The contract provides that when one-half of the purchase price has been paid, title will be given to the purchaser subject to a mortgage for the unpaid portion. What entries would you then make? How would you close the books at the close of each fiscal year? (*Illinois, May*, 1907.*)

14. A buys a tract of land and sells a one-third interest in it to B, who agrees to pay for such interest in ten monthly instalments at 6 per cent interest. The object of this investment is to make certain improvements on the land and to sell it on land contracts to various other parties, whom we will denominate as C, D, and E. A and B are to share in the proportion

of 2 to 1 in the cost of all improvements and expenses, taxes, and also in all moneys received on sales. The bookkeeping of all transactions is to be carried on the books of account kept by A. Outline journal entries for the following transactions:

(*a*) Original investment made by A.
(*b*) Sale of one-third interest to B.
(*c*) Sales of land to C, D, and E.
(*d*) Payment of taxes on land owned by A and B.
(*e*) Payment of instalment by B to A.
(*f*) Payment of instalments by C, D, and E to A.
(*g*) Adjustment of final profit made on investments between A and B. (*Illinois, May*, 1904.)

15. A real estate company, for the purpose of obtaining cash to be used in developing a large tract of land, assigns the mortgages, taken in part payment of land sold, to a trust company as trustee, whereupon the trust company delivers bonds to the real estate company, which are then sold to the general public.

You are called in to examine the books of the real estate company, and discover an apparent sale of land has been made to a syndicate, the members of which are directors of the company. Payment for the land sold to the syndicate was made by means of notes and mortgages of the syndicate. The mortgages were delivered to the trustee, bonds received, and sold for cash. The minute book contains an agreement with the syndicate members to repurchase the land from the syndicate at the price paid by the syndicate therefor. How would you treat this transaction in preparing the balance sheet of the real estate company and what comments, if any, would you make in your report? (*Pennsylvania, November*, 1913.)

16. The Lucas Land Company have asked you to advise them as to the proper method of closing their books at the end of their financial year, in order that they may learn the profit made in the operation of their business. The company owned 10,000 acres of land purchased at a cost of $50,000 and of this 2,500 acres have been sold as follows:

Acres	Contract Price	Cash Received	Balance Uncollected
500	$ 5 000	$ 5 000	
600	6 600	2 200	$ 4 400
700	7 000	1 000	6 000
400	4 800	1 600	3 200
300	3 900	1 300	2 600
2 500	$27 300	$11 100	$16 200

The company also sold during the year contracts for 3,500 acres at $10 per acre, upon which $1,250 was collected and later forfeited for non-payment of the instalments specified in the contracts.

Write a letter to the land company as to the proper method of closing their accounts, embodying therein reasons supporting your advice and using the foregoing figures to show the profits on the sale of land during the year, the balance on the Land and Contract accounts. (*Kansas, December*, 1915; *Missouri, December*, 1915.)

17. The following are the accounts of the Real Estate Investment Company on June 30, 1906. State (limiting your answer to 200 words) the manner in which you would conduct an audit.

Balance Sheet, June 30, 1906

ASSETS		
Real Estate, Improved	$450 000	
Real Estate, Unimproved	175 000	
Office Furniture	6 850	
Investments in Stock of Other Companies	76 000	
Rents Accrued but Unpaid	20 500	
Cash	22 150	
Total Assets		$750 500
LIABILITIES		
Capital Stock, 10 000 Shares $100 each, $50 paid	$500 000	
Mortgage Bonds (5 per cent)	200 000	
Reserve for Depreciation	18 625	
Income Account	31 875	
Total Liabilities		$750 500

Income Account for the Year Ending June 30, 1906

CREDITS		
Rentals	$84 500	
Interest on Investments	3 000	
Total Credits		$87 500
DEBITS		
Interest on Mortgages	$22 000	
Taxes	6 950	
Water Rents	4 225	
Repairs and Alterations	11 500	
Office and Miscellaneous Expenses	6 635	
Fire Insurance	610	
Title Insurance	417	
Legal Expenses	2 500	
Auditors' Fees	788	
Profit for Year	31 875	
Total Debits		$87 500

Arising out of the last question, having completed the audit, draw up a short and concise report to the directors, calling their attention to any points in the accounts to which notice should be specially directed. (*Pennsylvania, November*, 1906.)

18. The Lowland Realty Company owns three separate parcels of real estate, one of which is improved and produces income, one is partly improved and produces just sufficient income to pay the taxes and yearly charges, and the third one is unimproved and produces no income. How should these accounts appear on the books? (*New York, January*, 1923.)

19. The A Manufacturing Company decides to build 100 homes, which it will sell to its employees upon the instalment plan. The company will buy all material, employ all labor, and attend to all matters incidental to the project. You are requested to design a complete financial and cost accounting system to record the transactions attending this undertaking. Submit an outline of the complete system, including classification of accounts, forms and instructions for their use, illustrative entries, etc. (*Wisconsin, May*, 1920.)

20. A real estate development company sells its holdings in small building lots, taking notes from purchasers in part payment therefor. When in need of funds, the real estate company sells, or discounts, these purchase money notes. State what provision should be made on the books of the real estate company to record clearly its financial status under such circumstances. (*New York, January*, 1924.)

21. In the preparation of a financial statement of a real estate concern, you were requested to treat through operations all real estate sales made on the deferred-payment plan, based only on the realized collections per annum. What would be your procedure and upon what basis would you determine the realized profits from real estate sales? (*North Carolina, May*, 1923.)

22. The A. B. Land Company buys a tract of land and makes improvements thereon (streets, sidewalks, water and sewer connections, etc.) at a total cost of $50,000, its entire capital. To keep the property restricted it does not sell its lots but disposes of them all in its first year on 99-year leases for flat sums aggregating $100,000, and a nominal rental of $10 a year per lot to cover water and other service. Current expenses just consumed the nominal rentals for the first year. Then the company declares a dividend to its stockholders of $90,000 and its balance sheet at the close of the first year shows:

Assets		Liabilities	
Land and Improvements	$50 000	Capital Stock	$50 000
Cash	10 000	Surplus	10 000
	$60 000		$60 000

Is this correct accounting procedure or not? Give reasons. (*American Institute of Accountants, November*, 1922.)

QUESTIONS FOR CHAPTER XIV

TIMBER, LOGGING, AND SAWMILL COMPANIES

Accounting Systems

1. A company manufacturing lumber, which they sell both to the interior of the United States and to Australia, call upon you to install a system of accounting for their shipping and sales department. Describe briefly the forms and accounts to be used from the time the order is received to the final settlement of the debtor's account. (*Washington, June*, 1915.)

2. Draw up a set of accounts for a lumber company which operates five distinct sawmills, two logging camps, and commissaries at each of the seven points of operation. It purchases many goods on invoices subject to discount if paid within ten days from date of invoice. How does this affect the use of a voucher system in such a business? (*Florida, July*, 1909.)

3. On the death of a turpentine operator, the court appointed an administrator of the estate, the heirs being six sons, of whom three are of age and three are minors. In order to prevent waste, the court authorizes the administrator to continue the business, which consists of naval stores business and a sawmill.

Prepare a set of accounts so that the administrator may know the results of the business and so that he may easily prepare the accounts in proper form for the court. (*Florida, July*, 1909.)

4. Describe a system for controlling payrolls for naval stores, sawmill, or mining companies, where the following details occur: (*a*) commissaries are maintained and goods are advanced to employees between pay days; (*b*) cash is also advanced to employees between pay days; (*c*) in order to secure sufficient labor, new employees are allowed advances before they commence work. (*Florida, July*, 1909.)

5. Devise a chart showing the accounts of a lumber company. (*Washington, May*, 1911*; *California, November*, 1916; *North Carolina, November*, 1919.*)

Depletion

6. In auditing a lumber company you find they own 10,000 acres of West Virginia timber, that cost $15 per acre in 1910. The tract of timber is well located and has been cruised to cut 7,000 feet merchantable timber to the acre. You are requested to value the timber and set up a proper charge for depletion in your cost sheet. What would you fix as the value and how would you proceed? (*West Virginia, May*, 1919.)

7. A lumber company owns a 3,000-acre tract of timber cruised at 6,000 feet to the acre. The mill and timber cost $105,000. The salvage value of the mill is estimated at $3,500 and the land valued at $15,000. How much depreciation should each 1,000 feet of lumber carry? (*West Virginia, May*, 1917.)

8. In the installation of a modern system of accounts for a manufacturer of lumber from timber holdings, how would you proceed and in what manner would you handle raw material consumed and the depletion of timber? (*North Carolina, May*, 1923.)

9. Explain the various reserves that should be set up by a logging company, and the treatment thereof on the books of account. (*Pennsylvania, November*, 1918.)

10. What accounting provisions would you make in order to maintain the financial integrity, before declaring the dividends, in a logging company? (*California, May*, 1916.)

11. Define the following accounting word and term: "stumpage." (*Washington, June*, 1915.)

12. What especial duties has the auditor in connection with accounts relating to timber rights owned by a corporation? (*Florida, April*, 1908.)

Auditing

13. Outline the work which you think should be done in the audit of a lumber mill, emphasizing the items peculiar to the lumber business, to which you think particular attention should be given. (*Washington, May,* 1911.)

14. Name some of the distinctive elements in an audit of lumber manufacturing companies. (*North Carolina, June,* 1916; *North Carolina, August,* 1917*; *North Carolina, November,* 1918.)

15. A Chicago business man instructs you to make an audit of a lumber company in Louisiana in which he owns a half interest. The company owns the timber lands, operates a sawmill, and sells the rough lumber to various manufacturers in the North. Until a year ago your client was represented by a trustworthy employee who took an active part in the management of the company, but since that time the business has been entirely in the control of the owners of the other half of the company.

The company had been prosperous until a year previous, but the profits for the previous year had not been satisfactory. There had been no evidence of any bad faith on the part of the managing owners, but their attitude toward requests for statements and reports and the marked decrease in the profits had caused your client to suspect that they might be diverting the profits to themselves as individuals.

What methods might have been used to accomplish or to cover such a diversion?

How would you proceed in making the audit, what records would you ask to see, and what points would you investigate particularly? (*Illinois, May,* 1915.)

16. The Upland Shingle and Lumber Company, which operates several large sawmills, also maintains a general store at each plant. Most of the operatives are paid in brass checks in lieu of currency, and such "tokens" are redeemable at the store in payment for merchandise purchased. The selling price of the merchandise so disposed of includes a moderate profit, and at the end of each fiscal period the profit realized from the store is applied in reduction of the labor cost. Assuming that you were auditing the accounts of the company, how would you treat such transactions? (*New York, June,* 1919; *New York, January,* 1924.)

17. Give your opinion as to the proper methods for valuing the inventories of lumber manufacturing companies. (*Washington, November,* 1913.)

18. A lumber mill, owing to slack business, stops manufacturing, but not selling. During the period of shut-down the mill is almost entirely rebuilt; the old machinery thoroughly overhauled; new and additional machinery added; and the entire plant rearranged more efficiently. During the previous six years the book value of the plant has been reduced by the following depreciations: on buildings, 10 per cent per annum on the original cost; on machinery, 6 per cent per annum on the original cost.

You, as auditor for the company, are asked to advise to what accounts the costs of rebuilding, of overhauling, and of the additions are to be charged.

Give your answer, stating fully your reasons.

Also advise as to when, in your opinion, depreciation should be taken into consideration on the rearranged plant if active operations are not

resumed for six months after the completion of the changes. (*Washington, November*, 1913.)

19. In the case of a lumber company, for instance, how could you approximate the inventory when you have the previous inventory and the record of purchases and sales? (*North Dakota, July*, 1916.)

QUESTIONS FOR CHAPTER XV

MINING COMPANIES

General

1. A mining corporation has assets comprising, among others, leases, good-will, patents, rent, and royalties paid in advance. How would you deal with them in the Profit and Loss account and balance sheet? (*New York, June*, 1911.)

2. The balance sheet of a mining company contains, among other items on the asset side, the following: (*a*) Organization Expense; (*b*) Discount and Commission on Stock; (*c*) Cost of Stripping Surface of Mine; (*d*) Interest Paid in Advance; (*e*) Mine Fire, March, 1916.

Discuss the proper treatment of these accounts. (*California, May*, 1916.)

3. Discuss the principles under which the calculation of charges in a mining company should be made, covering (*a*) depreciation of plant and equipment; (*b*) amortization of development expenses. (*American Institute of Accountants, May*, 1920.)

4. Give the names of the principal books you would expect to find in the office of a coal mine. (*West Virginia, May*, 1917.*)

5. In the case of a mine, at what point, for accounting purposes, do development expenses cease and operating expenses begin? (*Washington, March*, 1909; *Washington, May*, 1911.)

6. Classify the Maintenance of Workmen's Cottages account, according to the subdivision of assets, liabilities, proprietary interest, income, and expenses, under which it should be grouped. (*Wisconsin, May*, 1919.)

7. The offices of a mining company are not satisfied that a sufficient control is kept of its income from company houses and other outside sources. What are your suggestions with respect to the same? (*Pennsylvania, November*, 1918.*)

8. John Barton leases a coal mine from Thomas Sutton upon the following terms: at a royalty of 25 cents a ton as rental, with an annual minimum of $500—the privilege being given to recover "dead" or "unearned" minimum rent within a period of 20 years. Draft the journal entries relative to the following output for five years: first year, 1,000 tons; second year, 2,500 tons; third year, 4,500 tons; fourth year, 1,800 tons (strike); fifth year, 3,800 tons. (*Illinois, May*, 1912.)

Wasting Assets

9. Give illustrations of "diminishing" or "wasting" assets. How should they be treated? (*Virginia, October*, 1912*; *California, November*, 1918; *American Institute of Accountants, May*, 1918; *Indiana, November*, 1919*; *Iowa, December*, 1918.*)

10. Give your understanding of the term "wasting assets." (*Illinois, May*, 1908.)

DEPLETION

11. Define the following: depletion. (*Virginia, November*, 1918; *South Carolina, September*, 1919.)

12. Give the officers of a mining company your recommendations with respect to the depreciation and depletion charges. (*Pennsylvania, November*, 1918.*)

13. (*a*) Explain fully whether practice accords with theory in regard to making provision for depletion of mines.

(*b*) If a company makes no provision for depletion and pays out all of its profits in dividends, what is the result? (*Ohio, November*, 1918.)

14. State how depletion is handled and appears on the general books of account. (*South Carolina, September*, 1919; *Pennsylvania, November*, 1919.*)

15. The directors of a mining corporation of which you are auditor decline to provide what you consider an adequate depreciation of wasting assets. What attitude would you assume in these circumstances? (*Washington, November*, 1913.)

16. You are called upon to audit the books of a coal company which owns 2,500 acres of coal land with a 5-foot vein of workable coal that cost the company $20 per acre in 1900. They have constructed a plant with a capacity of 125,000 tons per year. They wish to value the coal as of March 1, 1913, *en bloc*, and deduct a depletion for each ton of coal mined. How would you proceed, and what would be the depletion per ton that you would advise them? (*West Virginia, May*, 1919.)

17. A coal company owns 4,000 acres of coal land with a 4-foot seam of workable coal. The land cost $200 per acre and the company has spent $100,000 in development, equipment, etc. How much depreciation should be charged against each ton of coal mined? (*West Virginia, May*, 1917.)

18. Should depreciation be written off the accounts of a corporation whose property is of a wasting nature, such as a mine? (Give reasons.) (*Michigan, July*, 1906.)

19. How are the accounts affected by the non-existence of ore bodies for which developments have been made? (*California, June*, 1917.)

20. Distinguish between depreciation and depletion in the case of a company engaged in mining coal, and explain how these should be treated in a statement showing the operations for the year. (*Ohio, May*, 1923.)

ROYALTIES

21. Define royalty. (*Washington, July*, 1917.)

22. Where would you place the account, Royalties Paid, in the Income and Profit and Loss account? (*Washington, November*, 1913*; *Maryland, December*, 1917.)

23. The item, "Royalties Paid, $13,430," appeared amongst the assets of a coal-mining company, of which you are auditor. Explain its meaning, and state whether, and on what conditions, you would allow it to be treated as an asset. (*Washington, June*, 1915.)

24. Give fully your understanding of the accounting term (coal-mining company), "Royalties Paid." (*Washington, November*, 1913.)

25. A company has leased ore-bearing lands capable of producing 50,000 tons of ore, on the basis of a *royalty* of 10 cents on each ton of ore mined, and has guaranteed a minimum royalty of $1,200 a year. At the expiration of the first year, the minimum royalty has been paid, although no ore has been mined. What journal entry would you make in connection with the foregoing? Explain. (*New York, June*, 1912.)

26. A coal company leases land in which they are to pay a minimum royalty of $25,000 a year. Their royalty contract is based on a production of 10 cents per ton. Any year that the royalty does not amount to $25,000 they have a right to make up this shortage before they pay more than the minimum royalty in any two succeeding years.

Explain how you would handle this on the books of the coal company so that the Royalty account would show properly. The actual royalty for the first year is $20,000; for the second year, $22,000; and for the third year, $30,000. Prepare the journal entry to explain your answer. (*West Virginia, May*, 1919.)

Dividends

27. In the payment of dividends on mining stock, of what does the dividend consist? In what manner may an investor be deceived as to large dividends on mining stock? (*Iowa, December*, 1918.)

28. What accounting provisions would you make in order to maintain the financial integrity, before declaring dividends, in a coal mine? (*California, May*, 1916.)

Leases

29. The J. B. & B. Coal Mining Company has acquired a leasehold right to a certain area of coal, and also owns an area of freehold coal. What would you, as auditor, require to satisfy yourself that revenue was bearing its proper annual charge in respect to the coal mined? (*Michigan, June*, 1908.)

30. Discuss generally the duty of an auditor in relation to the depreciation of lease of coal mines. (*Washington, November*, 1913.)

31. A firm obtained a lease to mine all the coal in a certain tract, and after they had operated under the lease for a number of years a corporation desired to purchase the lease at such a price as would enable it to pay from the earnings 7 per cent on its investment and to set aside a sufficient amount at the end of each year in a sinking fund estimated to earn 4 per cent per annum accumulated at compound interest to secure the return of the investment when the coal is exhausted.

A mining engineer makes the following estimates: coal to be exhausted in 20 years; annual amount to be mined, 300,000 tons; development and equipment not considered of any value when mines are worked out. Accountants have ascertained that the firm realized a profit of 30 cents per ton from their operations after allowing for depreciation, etc.

On the basis of these estimates and the past profit, what price should the corporation pay for the lease? (*Pennsylvania, November*, 1921.)

Cost Accounting

32. Draw up a form of Mine Cost account. (*Washington, May*, 1910.)

33. What cost unit would you recommend for the following industry: coal mine? (*Wisconsin, May*, 1916.)

34. Is a system of cost accounts which gives satisfactory results in a machine shop adaptable to a bituminous coal mine? If you think it is not, state your reasons. If you think it is adaptable, without fundamental change, show what modifications would be required. (*Pennsylvania, November*, 1909.)

Financial Statements

35. Submit a *pro forma* balance sheet and Profit and Loss account, without figures, for a mining company. (*California, May*, 1916; *American Institute of Accountants, November*, 1918*; *West Virginia, May*, 1919*; *North Carolina, May*, 1922.*)

36. Give a statistical statement showing unit costs, or any other useful cost data, which may be practical for a coal mine. (*American Institute of Accountants, November*, 1918.)

Auditing

37. Outline the procedure to be adopted in a detailed audit of a coal-mining company. (*Kansas, May*, 1916; *West Virginia, May*, 1917*; *North Carolina November*, 1918*; *Pennsylvania, November*, 1918*; *West Virginia, May*, 1919*; *Pennsylvania, November*, 1919*; *American Institute of Accountants, May* 1920.*)

38. State briefly one special point which arises in connection with the audit of mining companies. (*Illinois, December*, 1918.)

39. The A Mine Company, owners of large coal property, have asked you to make an audit of this company; also of the B Supply Company, the latter company being the company store. The accounting books and records as well as the financial books of both companies are in the hands of the same officers and employees. State what special features you would consider in your audit due to this close relationship, which probably would not be undertaken if the two companies were separate and distinct companies. (*Pennsylvania, November*, 1920.)

40. In the case of a coal-mining company: (*a*) In what manner do you believe that the payrolls should be verified? (*b*) How would you determine the adequacy or inadequacy of the reserves for depletion or depreciation? (*Pennsylvania, November*, 1921.)

41. An auditor is engaged to examine a mining property, operated under a lease, and to audit the accounts, the auditor's client being a prospective purchaser. What are the two most important matters for the accountant to determine? (*New York, January*, 1917.)

42. A coal-mining company owning the mines it operates, having $500,000 5 per cent bonds outstanding redeemable by an annual sinking fund to be derived from profits, and with a floating debt of $100,000 represented by notes payable, makes the following statement of its operations to a banker, who asks you to examine and criticize it, to wit:

Profit and Loss Account for Year to June 30, 1913

Sales of Coal, 230,000 Tons		$300 000
Mining Labor	$215 000	
Supplies, Expenses, and Repairs	30 000	
		245 000
		$ 55 000
Rents and Miscellaneous Income		12 000
Steel Car Earnings Net of Repairs		20 000
		$ 87 000
Selling Expenses, including Agents' Commissions	$ 10 000	
General Office Expenses	4 000	
Legal	500	
Taxes	2 500	
Interest and Discount	35 000	
		52 000
Net Profits		$ 35 000

What comments or criticisms would you submit? (*Pennsylvania, November*, 1913.)

43. Name some of the main features in the audit of gold mines. (*North Carolina, August*, 1917.)

44. As accountant to a coal mine you are instructed to prepare estimates of the cash balances at the close of each of the succeeding six months. The following details, averages of the past years, are available:

Cost of Mining	$5.107 per ton
Current Selling Price	7.50 per ton

Assume that the mine starts operation January 1, after having been shut down, that there was $50,000 cash in bank at that date, that mining will be at the rate of 80,000 tons per month, that all labor and supplies are paid for in cash and that the company has contracts for delivery of 60,000 tons per month, payable the following month.

(*a*) Prepare an estimate of monthly cash balances January 31 to June 30.

(*b*) What are the profits for the six months? (*Wisconsin, May*, 1916.)

45. Outline, without figures, the opening and operating accounts of a coal-mining company, the capital stock of which, as well as bonds to be raised, shall be paid in instalments, as financial necessity demands.

The company has acquired part of the lands in fee and free from royalty, but the mining rights only have been secured from several contiguous land owners, each of whom has exacted independent terms of royalty, *e.g.:* (*a*) rates per annum per acre; (*b*) on the tonnage of coal produced; (*c*) on cubic measurement of coal removed; (*d*) percentage of selling price. Your accounts must be so arranged as to insure the proper credit to each of the grantors. All the coal is to be sent out of the mine through the same shaft, and emptied into the same bunkers; and the company wants you to draw up a form of report which will distinguish the different sources of output, and advise how it shall proceed in order to obtain and furnish the necessary information. (*Washington, May*, 1910.)

46. What basis of valuation should be employed with respect to mineral deposits? (*Ohio, October*, 1920.)

QUESTIONS FOR CHAPTER XVI

OIL WELLS

1. If you were asked to certify the earnings for a period of five years of an Oklahoma oil-producing company for the purpose of a prospectus to be issued simultaneously in New York and Pittsburgh for the sale of $2,000,000 preferred and $3,000,000 common stock, how would you proceed? Assume the company owns 150 leases, on which are located in all, say, 200 wells, of which 150 are oil-producing and 50 are dusters; that the leases have been acquired gradually at intervals throughout a 5-year period, and that during this period the average price received for the oil runs has fluctuated as follows: first year, $1.50 per barrel; second year, $1.80 per barrel; third year, $2.10 per barrel; fourth year, $2 per barrel; fifth year, $2.25 per barrel.

Assume further that the total cost of drilling and equipping the new wells (both producer and non-producer) has been charged to capital account, but that all other "prospecting" expenses have been charged off as operating expenses.

State as to your plan of taking depreciation, on the equipment, rate to be applied on rigs, machniery, etc., year by year.

Also disclose your plan as to depletion year by year and support your method by whether or not such is in line with Treasury Department regulations; if so, specify; and then state the information you would disclose in your certificate, giving a brief sketch of the condensed statement to which you would append it. (*Illinois, May*, 1914*; *Oklahoma, November*, 1919.)

2. You are called upon to audit and investigate the construction account of an oil and gas corporation, this account aggregating $2,500,000.

This corporation was organized twenty years ago with a capital of $50,000 and no indebtedness. The company had drilled comparatively few wells itself, but has purchased from time to time a large number of different leases and various producing properties. Some of these purchases have been made from outsiders and some from directors. It is believed by certain of the stockholders that the purchases made from outsiders have all been made at reasonable prices. There is, however, a feeling that the purchases from the directors have in many cases been made at exorbitant prices. With a few exceptions, the properties purchased have all been developed properties.

State in detail the steps you would take to audit this account, also the books and records that would be covered. What accounting steps would you take to compare the values of the properties purchased from outsiders with those purchased from the directors?

Please prepare your answer in such a manner as will satisfy the stockholders as to whether the properties purchased from the directors have been purchased at too high prices or not. (*Pennsylvania, November*, 1916.)

3. Devise a chart showing the accounts of an oil-producing company. (*California, November*, 1916.)

4. Give a *pro forma* monthly operating and profit and loss statement from an oil development company with producing wells, introducing a statistical statement showing unit costs or any other useful cost data which may be practical. (*American Institute of Accountants, November*, 1918.)

5. An oil company owns property with a new well producing 100 barrels per day. This property cost $50,000. What, in your opinion, would be a just percentage of the cost of the leasehold for depreciation for the first year, and so on, until the end of six years? (*West Virginia, May*, 1917.)

6. What is involved in the verification of the reserve for exhaustion of wells in an oil company? (*California, June*, 1917.)

7. You are retained by a firm of bankers to make such an examination of the accounts of an oil company engaged in both the production and refining of oils as will enable you to certify to its balance sheet as of December 31, 1920, and as to its earnings for the year ended the same date, the object of the examination being the issuance of additional bonds.

(*a*) Outline your method of procedure, stating the extent to which you would consider it necessary to carry your examination of the various balance sheet and profit and loss items.

(*b*) During the time the examination is in progress, general business conditions are quiescent. Sales are negligible and prices on all grades of oil have declined about 50 per cent, at the date your report is completed. What bearing, if any, has this condition upon your report? (*Pennsylvania, November*, 1921.)

OTHER EXTRACTIVE INDUSTRIES

Quarries

8. What cost unit would you recommend for the following industry: quarries? (*Wisconsin, May*, 1916.)

9. Should depreciation be written off the accounts of a corporation whose property is of a wasting nature, such as a quarry? Give reasons. (*Michigan, July*, 1906.)

Farms

10. Submit a *pro forma* balance sheet and Profit and Loss account, without figures, for a dairy ranch. (*California, May*, 1916.)

11. What is involved in the verification of the profit of a cattle ranch? (*California, May*, 1916.)

12. How would you deal in farm bookkeeping with growing crops and stock in process of increase? (*Illinois, May*, 1910.)

Fisheries

13. Give your opinion as to the proper methods for valuing the inventories of salmon cannery companies. (*Washington, November*, 1913.)

APPENDIX B

PROBLEMS FOR CHAPTER I

COMMISSION MERCHANTS, MERCANTILE AGENTS, WAREHOUSES

1. The Peerless Storage Warehouse Company has its treasurer's office in Boston and warehouse in a near-by town. The treasurer's books at June 30, 1914, show the following:

Warehouse Property	$50 000.00
Cash	98.05
Prepaid Interest	81.99
Accrued Interest on Investments	1 584.00
Investments	48 803.64
Due from Warehouse	643.80
Capital Stock	55 000.00
Mortgage Bonds	42 500.00
Accrued Interest on Bonds	850.00
Reserve for Depreciation	497.24
Surplus	2 364.24

A separate set of books at the warehouse show the following accounts and balances at June 30, 1914:

Cash	$311.05
Accounts Receivable	543.27
Accounts Payable	10.52
Due to Treasurer	843.80

The treasurer had received $200 in payment of accounts receivable at June 30, 1914, which was credited on the treasurer's books to the account with the warehouse, but was not taken up on the warehouse books until after June 30.

The Y Company is incorporated on March 31, 1914, with $100,000 capital stock and acquires control of the Peerless Storage Warehouse Company by capital stock ownership. It issues on May 15, 1914, $50,000 (par value) first mortgage 5 per cent bonds; purchases 500 shares of the Peerless Storage Warehouse Company stock (par $100) at 101; owns land costing $65,000; purchases $20,000 (par value) first mortgage 4 per cent bonds due 1920, at 98¼; has cash on hand $24,000; and a balance in the Profit and Loss account of $9,150. The taxes assessed on the land as of May 1, 1914, for the following year were $1,200 and there was interest accrued on the bonds issued from May 15, 1914, to June 30, 1914.

(a) Adjust the warehouse company books, bringing the interoffice account with the treasurer in agreement.

(b) Prepare a consolidated balance sheet of the three sets of books at June 30, 1914, and show therein the net amount of capital stock of each company in the hands of the public. (*Massachusetts, October*, 1914.)

2. A contracts with a textile establishment to sell the mill's annual output on the following conditions:

The mill is to bill the output to A at cost. A is to finance the mill to the extent of 75 per cent of cost on receipt of goods. The balance is to be remitted by A, as the various shipments are sold, less 5 per cent and advances. At the end of a year an analysis of A's affairs reveals the following as shown by his books, the goods being sold at 10 per cent profit above the factory cost. (Mill shipments $7,327,918.18.)

Mill Advances	$ 5 545 938	$ 5 000 000
Mill Sales	6 400 000	7 840 710
Freight and Cartage	90 000	80 000
Customers	7 840 710	7 632 200
Cash	7 610 200	5 635 938
Discounts	22 000	
Commission		320 000
Mill Account		1 000 000
	$27 508 848	$27 508 848

Prepare A's financial statement. (*New York, June*, 1911; *New York, June*, 1914; *New York, January*, 1920.)

3. The following is a preclosing trial balance as at December 31, 1913, prepared from the ledger of Messrs. Joseph and Johnson, commission merchants:

A. B. Joseph—Capital Account		$ 50 000.00
C. D. Johnson—Capital Account		50 000.00
Cash	$ 293 719.52	281 388.10
Customers	215 720.60	195 625.30
Buckeye Worsted Mills Consignment Sales	215 720.60	215 720.60
Freight and Cartage	18 652.70	10 362.60
Commissions		21 572.06
Discount Allowed	1 905.78	
Buckeye Worsted Mills Current Account	50 000.00	62 982.41
General Expenses	10 000.00	
Buckeye Worsted Mills Advances	202 735.40	120 803.53
Totals	$1 008 454.60	$1 008 454.60

The bookkeeper is seriously ill, and the firm of C. P. & A. (by whom you are employed as a senior accountant) has been requested to prepare from these data—without an audit of the books—a balance sheet, and to determine what the profits or losses for the year have been.

Mr. Johnson, one of the partners, brought this trial balance to the office, and furnished the following additional facts:

The firm started business January 1, 1913, with a cash capital of $100,000, of which each partner contributed one-half.

The firm does business with the Buckeye Worsted Mills, under a contract whereby it handles, on consignment, the product of the Buckeye Worsted Mills exclusively. The contract provides for an advance to the mills of 70 per cent of the billed value upon shipment of the goods from the mills. All sales are made at an advance of 25 per cent over billing price of the mills, and settlements for sales are made with the mills monthly, less a 10 per cent commission, less freight and cartage on the goods sold, and less the advances made on the goods sold. The shipments made during the year amounted, at billing price of the mills, to $289,622.

Your principal also furnishes you with the following explanations concerning the operation of two of the accounts shown on the trial balance:

Buckeye Worsted Mills—Consignment Sales; this account is credited with sales and debited with the monthly settlements.

Freight and Cartage; the debits in this account measure the freight and cartage paid on shipments made to the firm, and the credits measure the deductions for freight and cartage made in the settlements with the mills.

You are asked to submit:

(*a*) Ledger accounts exhibiting in summary form the entries for the year's transactions, each entry in the several ledger accounts cross-indexed by number so as to identify the same with the contra debit or credit in another ledger account.

(*b*) A statement of the profits or losses.

(*c*) A balance sheet as at December 31.

(*d*) The value of the consigned goods unsold at the billing price of the mills. (*Ohio, November*, 1914.)

4. On January 1, 1916, Robert Seller's accounts stood as follows:

Cash	$ 15 214	Capital	$100 000
Inventory (Boston)	37 065	Accounts Payable	34 996
Inventory (Consignments Outward)	7 500	Sundry Consignors	10 200
Consignments Inward	10 200		
Accounts Receivable	45 217		
Ship Shares	30 000		
	$145 196		$145 196

James Buyer was that day admitted as a partner. He brought into the business $30,000 in cash, 1,000 bales of cotton at $50 a bale, and paid Robert Seller $10,000 as a bonus for good-will. The partners are each to receive a salary of $200 monthly, and to divide the remaining profits in proportion to their investments.

The partners' accounts, inventory accounts, and investments are kept in the private ledger, and during the year the Private Ledger account in the general ledger was charged with partners' salaries, with $1,500 additional withdrawn by James Buyer, with $10,000 invested in bank stock, and was credited with $7,500 received for a sale of ship shares.

The following is a trial balance of the general ledger on December 31, 916, before closing:

Purchases	$300 000	Sales	$475 000
Consignments Inward	14 900	Purchase Ledger Account	41 230
Cash	43 870	Private Ledger Account	46 635
Sales Ledger Account	198 370	Sundry Consignors	25 900
Expenses	36 115	Commission	1 390
		Dividend on Bank Stock	600
		Ship's Revenue	2 500
	$593 255		$593 255

Consignments outward of $15,000 were credited to Purchases account and charged to consignees in the purchase ledger. Consignments inward were treated on the alternative plan, as indicated by the above trial balances, and the goods received on consignment during the year amounted to $32,500 at *pro forma* invoice price. Sales of these goods were charged to customers at $27,800, on which 5 per cent commission is allowed by the consignors, to whom $15,410 was paid in cash. Goods held for account of sundry consignors on December 31, 1916—$20,400. Inventory (Boston), $68,000. Account sales received of goods on shipment show $17,000 net, and $8,000 still unsold. No shipment ledger has been kept. These sales have not been entered on the books, and no settlements have been made. A second dividend of $500 on bank stock was declared on December 15, payable January 10, 1917.

Adjust the accounts, divide profit between the partners, and show a statement of condition after closing.

Technic will be considered in valuing the answer to this question. (*Massachusetts, October*, 1917.)

5. A corporation engaged in growing and jobbing produce desires to sell its paper upon the open market and calls upon you to prepare statement to be presented to note brokers. A trial balance after closing their books June 30, 1918, is given herewith.

Required: Balance sheet, classifying assets and liabilities according to their nature. State if, in your opinion, the company would be justified on the basis of statement submitted, in offering its paper for sale; if not, give reasons.

Trial Balance, June 30, 1918

Cash on Hand and in Banks	$ 20 000	
Accounts Receivable—Customers	200 000	
Officers' Overdrafts	15 000	
Reserve for Doubtful Accounts		$ 20 000
Notes Receivable—Good	50 000	
Inventory Stock on Hand	50 000	
Farm Accounts—representing Fertilizers, Seed, Growing Crops, Equipment, etc.	200 000	
Mortgages Receivable	50 000	
Real Estate Investments	200 000	

Trial Balance, June 30, 1918.—*Continued*

Stocks in Commercial Enterprises	$ 50 000	
Storage Warehouse and Equipment	200 000	
Delivery Equipment	20 000	
Deferred Operating Charges	2 000	
Sundry Accounts Payable		$ 100 000
Money on Deposit		50 000
John Doe, for Money Advanced on Account of Fall Crop		25 000
Reserve for Depreciation Warehouse and Equipment		20 000
Notes Payable		300 000
Mortgage on Real Estate		100 000
Capital Stock		25 000
Undivided Profits		417 000
	$1 057 000	$1 057 000

(*Virginia, November*, 1919.)

6. A commission house, composed of three partners, is selling agent for sundry consignors whose accounts are unguaranteed. The rate of commission is 3 per cent of the net sales. The fiscal terms end June 30 and December 31. The partners' capital accounts are to be credited with interest at 6 per cent per annum, and with the net earnings, which are to be apportioned as follows: J. Doe, 60 per cent; R. Roe, 30 per cent; J. Smith, 10 per cent. No interest is to be computed on J. Doe's drawing account; that account is to be credited with 1 per cent of the net sales. Following is the trial balance, December 31, 1910:

Cash	$ 16 800	Sundry Creditors	$ 100
Advances to Sundry Consignors, Account of Sales	105 700	Sundry Consignors' Sales Accounts	235 600
Accounts Receivable, for Account of Sundry Consignors	235 600	J. Doe, Capital (June 30, 1910)	100 000
J. Doe, Drawing Account	5 800	R. Roe, Capital (June 30, 1910)	9 000
Salaries	3 400	J. Smith, Capital (June 30, 1910)	4 000
Rents	700	Commissions	18 000
Traveling	600	Interest Received from Consignors, on Advances Account of Sales (to December 31)	2 900
Teaming	200		
Miscellaneous Expenses	800		
	$369 600		$369 600

The net sales, during the six months, were $600,000. Write, in proper form, a statement for the six months ended December 31, 1910, showing the detail of gross earnings; expenses; total interest credited to the part-

ners; net earnings; and the distribution of the latter. Show a balance sheet, December 31, 1910. (*Massachusetts, June*, 1912.)

7. X shipped a consignment of merchandise valued at $3,750 to Y under date of August 4, X paying $37.50 cartage and $15 insurance. Y received the goods on August 20, paying freight $175 and cartage $30. He sold the merchandise as follows: August 30, $1,000; September 30, $2,000; October 30, $1,500, on which latter he paid storage charges, $75. Y charged 5 per cent commission on sales and credited net interest at 6 per cent. He forwarded an account sales with remittance of net proceeds to X, who received them November 10.

Prepare shipment accounts as appearing on X's ledger and consignment accounts as appearing on Y's ledger. (*New York, January*, 1916.)

8. X of New York is the purchasing agent of Y, a South American trader, who pays X a commission of 5 per cent on all transactions executed. X executes his orders, draws a draft on Y for the amount involved, and discounts the draft with a New York bank, which pays the debts created by the purchase. The bank forwards the draft of X for collection.

Y orders through X 100 barrels of flour, purchased of A, B, and S at $10.40 per barrel; freight paid, $92; cartage paid, $38; insurance, etc., $18. He orders also through X miscellaneous goods purchased of D, E, and F, amounting to $7,500; freight paid, $72; cartage paid, $38; insurance, etc., $20. X draws a 60-day draft in favor of the bank for the amount due, which was discounted at 1 per cent.

Create ledger accounts to express correctly the above transactions. The insurance is covered under a floating policy. Furnish a trial balance of the ledger. (*New York, January*, 1919.)

9. The Jones Gas and Electric Fixture Company has an agreement for the year 1912 with the Universal Corporation, by which the first-named corporation sells its entire output to the second corporation on terms as follows:

(*a*) All merchandise to be delivered by the Jones Company f. o. b. at the warehouse of the Universal Corporation.

(*b*) Goods to be billed by the Jones Company, on the basis of estimated costs, including all administrative and other expenses, plus 10 per cent thereon, with the understanding that at the end of the year an adjustment will be made charging or crediting, as the case may be, the Universal Corporation with an amount equal to the difference between the amount of the bills rendered and the total actual cost of the goods billed, plus 10 per cent thereon.

(*c*) The Universal Corporation to sell the output at the best prices it can secure and divide with the Jones Company the gross profit thus derived, as follows:

(1) Gross profit equal to 33⅓ per cent of the cost of the merchandise as charged by the Jones Company to be retained by the Universal Corporation.

(2) Any excess of gross profit over the 33⅓ per cent retained by the Universal Corporation on sales of Jones Company products to be divided equally between the two companies.

The following is a trial balance of the Jones Company at the end of the year, with details of the inventories at that date, also data as to sales of Jones Company products by Universal Corporation:

Trial Balance

Machinery	$ 19 374.17	
Tools	3 564.86	
Universal Corporation	34 176.28	
Accounts Payable		$ 12 889.56
Sales		209 643.35
Return Sales	11 269.54	
Purchase of Materials	89 156.38	
Royalties Paid	3 762.74	
Factory Labor—Direct	35 249.77	
General and Administrative Salaries	15 036.14	
Packing Material	1 654.37	
Cartage Inward	895 37	
Cartage Outward	628.45	
Machinery Expense	1 754.76	
Factory Labor—Indirect	6 724.19	
Power	3 296.28	
Scrap Material Sales		1 853.06
Rent of Factory	5 000.00	
Depreciation on Machinery and Equipment (1912)	2 856.11	
Office Expenses	4 137.98	
Taxes and Insurance	1 983.35	
Factory General Expenses	3 164.29	
Discount on Purchases		1 305.23
Cash	11 409.23	
Taxes and Insurance Prepaid	525 59	
Inventory of Material and Supplies (January 1, 1912)	35 176.22	
Inventory of Goods in Process (January 1, 1912)	13 231.74	
Capital Stock		75 000.00
Reserve for Adjustment of Materials and Supplies to Market Price as at January 1, 1912		3 336.61
	$304 027.81	$304 027.81

Value of inventories at December 31, 1912, based on market prices, amounted to:

Materials and Supplies	$34 226.00
Goods in Process	12 621.00
Accounts of Universal Corporation:	
Purchases of Jones Company Products	$198 373.81
Sales	262 421.46
Inventory of Jones Company Goods December 31, 1912, valued at purchase price	38 246.13

Prepare a Profit and Loss account for the Jones Gas and Electric Fixture Company, taking up their profits, if any, accruing on sales of Universal Corporation. (*Ohio, November*, 1915.)

10. By the terms of an agreement entered into between an export agent and a manufacturing company, the agent was to reimburse the company for the value of any of the company's product destroyed through causes over which the company had no control. On December 1, 1915, the storehouse containing all the company's product was mysteriously destroyed and in accordance with the contract the company submitted its estimate of the amount due by the agent as $17,659.05. The agent wished to verify this and obtained the following data from the company's books:

Commissions, debit balance, $2,925.03; insurance, $588.69; interest, debit balance, $939; interim dividend, $4,794; inventory, January 1, 1915, $4,705.86; labor, productive, $58,498.74; legal expense, $52.50; net profits, December 1, 1915, $13,358.73; purchases, $166,247.46; repairs, $48; sales, $245,064.12; sundry factory expense, $9,605.76; surplus, December 1, 1915, $8,564.73; telephone, $1,248.18.

Prepare a statement showing the value of the company's product on hand December 1, 1915. (*New York, January*, 1916.)

11. John Doe, a manufacturer's agent who starts in business with a cash capital of $15,000, receives from the manufacturer $45,000 worth of goods on consignment, subject to a discount of 5 per cent when he pays for the goods.

Doe pays freight amounting to $1,400 and allows claims for damaged goods amounting to $1,500, the total of which is chargeable to the manufacturer. He sells all the consigned goods for a total of $60,000 and receives $44,000 from his customers, allowing them in settlement of the accounts $400 discount and $600 for defective goods. He makes the following payments: $2,100 for freight, of which $1,400 is chargeable to the manufacturer as noted above, and $900 for expenses; he also pays the manufacturer $37,950.

Prepare account of sales to be rendered to the manufacturer, balance sheet, statement of profit and loss, and statement of Capital account. (*New York, January*, 1920.)

12. From the trial balance and supplementary information given below, prepare balance sheet and Profit and Loss account for the Farmers' Warehouse Company.

Trial Balance

Advertising	$ 163.00	
Accounts Receivable	20 561.88	
Buildings	41 603.75	
Bank Commissions on Farmers' Checks	452.87	
Cash in Bank	238.94	
Capital Stock, Common		$60 000.00
Capital Stock, Preferred		40 000.00
Commissions Received		15 587.25
Deficit	20 251.13	
Depreciation		7 493.02
Furniture and Fixtures	1 779.29	
Farmers' Checks Outstanding		1 138.66
Fertilizer Account		3 181.25

Trial Balance.—*Continued*

Hogsheads	$ 234.80	
Insurance	776.45	
Interest	875.00	
Labor	1 025.04	
Notes Payable		$10 303.20
Office Expenses	387.39	
Real Estate	35 862.77	
Repairs to Buildings	476.83	
Salaries	10 256.00	
Taxes	349.65	
Tobacco Account	2 258.51	
Water, Light, and Fuel	150.08	

Fertilizer: Purchases, $15,756.50; sales, $18,937.75; no inventories.

Tobacco: Inventory at beginning, $1,362.02; purchases, $29,195.60; sales, $28,299.11; none on hand at close of season.

Taxes due and unpaid, $1,602.84.

An analysis of accounts receivable shows that these are for sales of fertilizer and cash loans. Notes to the amount of $26,369.91, which have been credited to customers, are under discount at the bank; none of these notes have been paid by the makers, although all are past due. Customers' notes past due, amounting to $16,842.37, are held in the office; none of these have been credited to customers' accounts, the custom being to credit the proceeds when paid or discounted.

First mortgage bonds, amounting to $40,000, have been issued but not sold, same being hypothecated at the bank as collateral to discounts and notes payable.

Depreciation on buildings and furniture and fixtures to be allowed at 5 per cent. (*North Carolina, May,* 1922.)

PROBLEMS FOR CHAPTER II

DEPARTMENT STORES AND BRANCHES

1. The condition of the Atlantic Company at the close of business December 31, 1913, is reported by them as follows:

Assets		Liabilities	
Real Estate	$ 150 000.00	Capital Stock	$ 500 000.00
Machinery	200 000.00	Mortgage on Real Estate	100 000.00
Cash	24 500.40	Accounts Payable	67 000.00
Accounts Receivable	320 800.50	Notes Payable	100 000.00
Merchandise	375 480.70	Surplus	200 000.00
		Profit and Loss	103 781.60
	$1 070 781.60		$1 070 781.60

The company has a branch, to which it sells its goods at 20 per cent over inventory prices and carries this account, together with other branch assets, as a receivable.

The statement of the branch on same date was:

Assets		Liabilities	
Fixtures	\$ 6 205.79	Atlantic Company	\$25 033.43
Cash	1 107.55		
Accounts Receivable	12 478 14		
Merchandise at Price Billed to Branch	5 241.95		
	\$25 033.43		\$25 033.43

(*a*) What was the inventoried value of the branch merchandise?

(*b*) Prepare a corrected statement of the Atlantic Company. (*Massachusetts, October*, 1914.)

2. A company with head office in Chicago and factory at South Bend, Indiana, conducts three selling branches in New York, San Francisco, and Montreal, which are supplied with goods from the factory, the invoices being sent out from head office.

The branches keep their own sales ledgers, send out monthly statements to customers, and receive cash against their ledger accounts, which they remit weekly to Chicago.

All branch expenses, including salaries and wages, are paid by the branches from Petty Cash accounts, kept at a fixed balance of \$500, by draft on head office.

The following information is supplied by the branches at December 31, 1913, summarizing the transactions of the previous six months:

	New York	San Francisco	Montreal
Rents and Taxes Paid	\$ 200	\$ 175	\$ 75
Sales for 6 months to December 31, 1913	12 500	11 800	10 225
Salaries and Wages	1 650	1 520	1 600
Returned Sales	200	100	250
Allowances to Customers	50	40	30
Bad Debts		125	60
Cash Sales	6 250	5 380	6 100
Cash Received from Customers on Ledger Accounts	10 850	10 260	9 150
Debtors, July 1, 1913	5 820	6 140	7 240
Debtors, December 31, 1913	7 220	7 415	7 975
Petty Cash on Hand, July 1, 1913	500	500	500
Petty Cash on Hand, December 31, 1913	500	500	500
Stock, July 1, 1913	3 450	3 820	3 650
Stock, December 31, 1913	4 300	4 720	4 500
Goods received from Head Office Factory	11 500	10 240	10 350

From these details prepare branch accounts as they should appear in the head-office books and draw up a final general trial balance with branch Profit and Loss accounts. (*Illinois, May*, 1914.)

3. The A, B, & C Company operates a retail store with two departments, X and Y. The balances appearing on the books of the company before closing are given herewith.

A, B & C COMPANY

Trial Balance

Accounts Receivable—All Good:		
X	$ 15 000	
Y	6 125	
Accounts Payable		$ 25 423
Advanced to B	1 075	
Bad Debts (X, $1,400, and Y, $500)	1 900	
Barn Rent and Expense	350	
Bank Loans		12 000
Bills Receivable	650	
Cash on Hand	250	
Capital Stock		20 000
Discount on Purchases:		
X		15 500
Y		9 768
Drivers' Wages	2 400	
Feed	640	
Furniture and Fixtures	5 000	
First National Bank	2 496	
General Advertising	7 720	
Horses, Wagons, Etc.	1 700	
Inventory—December 31, 1913:		
X	26 106	
Y	15 000	
Insurance	1 125	
Interest and Discount on Notes Payable	925	
Loan from A		7 000
Office and General Expenses	1 200	
Purchases:		
X	224 300	
Y	99 600	
Rent and Light	4 000	
Surplus		2 920
Sales:		
X		243 800
Y		106 500
Salaries:		
Office	2 850	
Officers	10 000	
Salesmen:		
X	7 553	
Y	4 946	
	$442 911	$442 911

The books were closed on the basis of the preceding trial balance by taking up the inventory of merchandise, which amounted to $33,400 for department X and $15,000 for department Y.

Prepare a draft of the adjusting entries necessary to bring the books into accord with the adjusted statements, a balance sheet, and a departmental statement of profits based on the following information:

Delivery expenses should be charged equally to the two departments and general expenses, two-thirds to X and one-third to Y.

The furniture and fixtures, horses, wagons, etc., were taken up on the books at the appraisal values at January 1, 1914. No additions were made during the year except that additional fixtures costing $450 were received in December. The bill for these fixtures had not yet been entered.

Depreciation should be provided at the rate of 10 per cent of the beginning balance of the Furniture and Fixtures account and at 20 per cent for horses, wagons, etc.

An error of $350 was discovered in the inventory of department X, which resulted in an overstatement of that amount.

The unexpired insurance amounted to $225 at December 31, 1914, and $200 at December 31, 1913.

The bank loans consisted of two notes for $6,000 each. One note dated October 1 and due in four months bore interest at 6 per cent, and the other dated November 1 and due in four months was a non-interest-bearing note which had been discounted at 5 per cent. There were no bank loans outstanding at the beginning of the year.

Accrued taxes have never been taken up. The amount accrued is estimated to be the same as it was a year ago, *i.e.*, $300. (*Illinois*, *May*, 1915.)

4. The Imperial Manufacturing Company, authorized capital of $1,000,000 common and $1,000,000 preferred, has called you in to assist in closing the books at the close of its fiscal year, December 31, 1912. The company operates three plants, the product of two of which is sold principally to the third at slightly above supposed cost.

Trial Balance, December 31, 1912

Accounts Payable		$ 54 674.02
Accounts Receivable	$ 258 995.73	
Advances to Salesmen	5 530.98	
Advances to Plant No. 3	698.10	
Auto Trucks	5 745.00	
Cash in Bank	7 098.88	
Buildings—Plant No. 1	150 200.00	
Buildings—Plant No. 2	40 319.20	
Buildings—Plant No. 3	36 548.11	
Building Reserve for Depreciation		31 249.62
Capital Stock—Common		750 000.00
Capital Stock—Preferred		750 000.00
Canadian Wheel Company—Stock	70 000.00	
Goods Returned	17 262.83	
Allowances	8 669.58	
Cash Discounts		5 706.41

Trial Balance, December 31, 1912.—*Continued*

Cash Discounts	$ 3 692.32	
Electrotypes	1 800.00	
Furniture and Fixtures—Plant No. 1	13 854.85	
Furniture	1 747.91	
Administrative Expenses:		
Stationery and Printing	4 169.85	
Telephone and Telegraph	2 921.00	
Postage	2 532.04	
Donations	3 964.49	
Sundry Administrative Expense	5 519.46	
Legal	22 870.17	
Salaries	59 263.27	
Goods Shipped "No Charge"	3 891.81	
Interest Expense	3 678.04	
Interest Earned		$ 339.74
Machinery—Plant No. 1	165 240.80	
Machinery—Plant No. 2	55 540.12	
Machinery—Plant No. 3	65 000.00	
Imprest Cash	125.00	
Machinery Reserve for Depreciation		74 008.19
Royalty on Patents Owned		3 232.50
Notes Payable		45 500.00
Royalty on Patents Leased	2 266.00	
Notes Receivable	5 705.17	
Patents and Trade-marks	750 000.00	
Patterns	36 309.31	
Profit and Loss Current	25 751.24	
Real Estate	49 700.00	
Restaurant Operating	545.22	
Restaurant Equipment	325.54	
Sales—Plant No. 1		1 242 046.48
Sales—Plant No. 2		7 351.94
Sales—Plant No. 2 to Plant No. 1		135 006.64
Sales—Plant No. 3 to Plant No. 1		64 190.20
Deferred Experimental Charges	28 514.09	
Selling Expense	112 581.28	
Treasury Stock	8 300.00	
Surplus, 1911		203 313.71
Gain Account—Reappraisal of Real Estate and Machinery		50 000.00
Accrued Payroll		3 419.66
Accrued Commissions		5 619.68
Reserve for Bad Debts		18 903.87
Dividend No. 20	45 000.00	
Factory Ledger	1 361 785.27	
	$3 444 562.66	$3 444 562.66

The factory ledger contains the following accounts:

	Plant No. 1	Plant No. 2	Plant No. 3
Insurance	$ 1 506.09	$ 310.00	$ 350.21
Inventories—Raw Materials, January 1, 1912	92 970.00	7 480.21	19 899.76
Inventories—Finished Material, January 1, 1912	117 981.56	1 199.58	23 027.66
Inventories—Supplies Material, January 1, 1912	8 007.67	1 201.38	1 188.81
Purchases Material	381 582.98	38 236.12	24 530.58
General Factory Expense	19 147.34	10 437.50	2 799.60
Fuel and Power	4 181.60	1 321.22	1 272.76
Engineering Department	5 456.44		
Drafting Room—Department Salaries	19 452.34		1 983.94
Drafting Room—Material	1 784.39		209.82
Stock Coke Purchased		697.17	
Molding Sand Purchased		1 596.30	
Core Sand		218.04	
Non-productive Labor	132 780.08	8 115.95	9 621.14
Productive Labor	176 929.89	71 430.98	19 611.94
Freight	26 120.92	3 079.08	1 923.27
Installing and Erecting Product	12 197.64		
Taxes	6 190.20	1 921.16	616.01
Castings Delivered by Plant No. 2	135 006.64		
Motors Delivered by Plant No. 3	64 190.20		
Inventories—Raw Material, December 31, 1912	112 262.88	12 423.73	22 711.06
Inventories—Finished Material, December 31, 1912	148 693.85	4 127.28	30 361.62
Inventories—Supplies Material, December 31, 1912	9 522.92	1 550.86	1 041.74

Compute depreciation as follows: on auto trucks, 20 per cent on $2,745, 10 per cent on $3,000; on buildings, 5 per cent; on machinery, 10 per cent; on office furniture, 10 per cent on plant No. 1, 5 per cent on plant No. 2; on restaurant equipment, 25 per cent. You find bad accounts fully provided for on the books. Insurance expires December 31, noon. Discount on bank loans paid, not accrued, $1,012.20. Interest on borrowed money accrued, not paid, $576.08. The items of insurance and taxes are to be considered as applying solely to manufacturing.

Prepare a comprehensive operating statement showing results of each plant and entire business and prove same by a balance sheet. Show the Surplus account in analytical form. (*Michigan, June,* 1915.)

5. The following is the trial balance of Oliver and James, agents, Buffalo branch, December 31, 1912:

New York Office		$2 500
Accounts Receivable	$3 000	
Cash in Bank	2 500	
Expenses	800	
Merchandise Account		3 800
	$6 300	$6 300

Inventory, $2,000.

From the above data make the journal entries to adjust the New York books. (*New York, June*, 1913.)

6. The general books of the Anglo-Mexican Rubber Company have been transferred from London to San Francisco on account of the European War, but the English stockholders have insisted that the reports made to them shall be in pounds, shillings, and pence.

On October 31, 1916, the trial balance of the general ledger shows:

Estate Purchase	$19 000	
Estate Development	35 150	
Estate Produce Stock, November 1, 1915	3 325	
Cash in Bank, London at 4.70	2 525	
Cash in Bank, San Francisco	6 000	
Estate Manager, November 1, 1915	1 000	
Remittances to Estate Manager	8 000	
London Office Expenses	700	
San Francisco Office Expenses	3 300	
Share Capital £14,000 at 4.75		$66 500
Creditors		11 800
Exchange		350
Profit and Loss Balance		350
	$79 000	$79 000

Upon the completion of this trial balance the accounts of the estate manager are received for the year ended October 31, 1916.

Balance, November 1, 1915	$ 1 000	
Remittances from San Francisco	8 000	
Rebates	650	
Sale of Produce	10 350	
Profit on Rice	1 200	
Expenditure on Development		$ 8 000
Expenditure Purchase New Land		7 400
Expenditure on Upkeep of Estate		4 200
Balance Carried Forward		1 600
	$21 200	$21 200

The unsold produce is valued by the manager at $5,000. You are required to submit a revenue statement and a balance sheet for presentation to the shareholders.

Compute exchange at $4.80 to the pound. (*California, November*, 1916.)

7. A manufacturing concern having a branch in another town presents the following trial balances on January 1, 1912:

Main Office

Plant	$125 500	Capital Stock	$250 000
Material and Supplies (Inventory January 1, 1911)	68 300	Notes Payable	30 000
Purchases	245 800	Accounts Payable	42 630
Labor	163 400	Net Sales	480 300
General Expense	24 900	Profit and Loss (January 1, 1911)	31 820
Insurance—(1 year to January 1, 1912)	3 400		
Accounts Receivable (worth 95 per cent)	84 600		
Cash	4 870		
Dividends Paid	20 000		
Branch	93 980		
	$834 750		$834 750

Branch

Plant	$ 35 200	Net Sales	$ 97 620
Material and Supplies (Inventory January 1, 1911)	16 500	Main Office	93 980
Purchases	62 450		
Labor	40 610		
Insurance (1 year to April 1, 1912)	1 260		
General Expense	7 820		
Accounts Receivable (worth 100 per cent)	24 600		
Cash	3 160		
	$191 600		$191 600

Inventories of material and supplies on January 1, 1912, were: main office, $45,300; branch, $28,400.

No inventories of finished goods, as same were sold on contract for daily shipments, and are all billed upon closing.

In closing on January 1, 1911, the branch charged off all insurance.

"General Expense" includes salaries, office expense, taxes, etc.

Selling expense has been deducted from the sale.

Construct one working account, Profit and Loss account, and closing balance sheet for the entire concern, omitting estimate for depreciation. (*Massachusetts, June*, 1912.)

8. Compile from the following particulars, supplied by the branches, an account with each branch in the books at the head office of the Wholesale Company, whose year ends December 31, 1909, bringing down the balances as they should appear on January 1, 1910.

The branches receive all their goods from the head office and pay in all their cash every day. They keep their own sales ledgers and do their own collecting. All payments for wages and expenses at the branches are drawn by check from the head office on the imprest system.

	A	B
Merchandise Received from Head Office	$10 360	$10 730
Cash Received from Customers	11 450	10 340
Allowance to Customers	15	35
Returns from Customers	75	200
One Year's Sales to December 31, 1909	10 870	12 605
Cash Sales	8 400	5 700
Bad Debts	280	530
Inventory of Merchandise at January 1, 1909	2 300	2 500
Debtors at January 1, 1909	8 270	5 730
Debtors at December 31, 1909	7 320	8 760
Inventory at December 31, 1909	3 750	4 320
Rent and Taxes Paid	600	730
Wages and Other Expenses	2 020	2 310

(*Michigan, June,* 1910.)

9. The following trial balance at December 31, 1917, is taken from the books of the Standard Manufacturing Company, of Cincinnati, which has a branch in New York and another in Chicago.

Capital Stock		$ 900 000
Raw Material Purchases	$ 800 000	
Interest on Notes Payable	4 000	
Sales of Waste		5 000
Plant and Machinery	800 000	
Surplus		100 000
Notes Payable		40 000
Direct Labor	630 000	
Selling Expense	60 000	
Cash Discount on Sales	10 000	
Inventory Raw Material, January 1, 1917	50 000	
Advertising	50 000	
Administrative Expenses	75 000	
Freight Out and Packing Expenses	30 000	
Inventory, Work in Process, January 1, 1917	100 000	
Inventory, Finished Goods, January 1, 1917	75 000	
New York Office, Current Account	215 000	
Chicago Office, Current Account	360 000	
Cash	160 000	
Accounts Receivable	120 000	
Notes Receivable	10 000	
Cash Discount on Purchases		12 000
Sales at Cincinnati		1 500 000
Sales to New York Office		435 000
Sales to Chicago Office		800 000
Reserve for Depreciation		50 000
Accounts Payable		210 000
Bad Debts	3 000	
Manufacturing Expenses and Supplies	500 000	
Totals	$4 052 000	$4 052 000

Inventories at home office on December 31, 1917, were as follows: raw materials, $45,000; goods in process, $150,000; finished goods, $245,000.

Shipments in transit to the New York office amounted to $10,000.

Shipments to branch offices are billed at selling prices, which are 50 per cent above cost.

All expenses of branch offices are paid by the home office and included in its expenses.

The branch offices furnish the following statements of conditions at December 31, 1917:

	New York	Chicago
Debits:		
Cash	$ 10 000	$ 1 000
Accounts Receivable	65 000	29 000
Inventory, January 1, 1917 (selling value)	15 000	30 000
Purchases from Home Office	425 000	800 000
	$515 000	$860 000
Credits:		
Sales	$310 000	$500 000
Home Office Account	205 000	360 000
	$515 000	$860 000

The actual inventories of goods on hand at December 31, 1917, at prices as billed by the home office, were as follows: New York office, $120,000; Chicago office, $230,000.

Provide 5 per cent depreciation on plant and machinery, based on the cost as shown on the trial balance.

From the foregoing data, you are asked to prepare a balance sheet and a profit and loss statement, and to make such comments thereon as you think are necessary to a clear understanding of the condition of affairs.

Submit your working papers, so that the board may see how you arrive at your result. *(Ohio, November, 1918.)*

10. A branch-office business was started the first of the year, the head office advancing $5,000 cash. During the first year merchandise was shipped to branch, invoiced at $75,000.

An auditor checking up the business at the close of the year finds the following:

Merchandise sales were $60,000, with selling price of goods 20 per cent advance on invoice.

Proper vouchers were on file duly receipted for following payments:

Rebates and Allowances on Damaged Goods	$1 500
Salaries and Other Expenses	4 500
Freights	2 500

The books also showed:

Remittances to Head Office	$35 000
Uncollected Accounts	15 000

the balance of the sales having been realized in cash, less rebates and allowances as noted.

The cash on hand and inventory of unsold goods, together with the foregoing records, properly account for everything.

Prepare statement, such as an auditor would make in reporting to the head office, balancing the business of the branch house. (*Illinois*, *May*, 1906; *Massachusetts*, *June*, 1910.)

11. Following are trial balances of the home office and branch before closing.

(*a*) Prepare closing entries for both the home office and branch, and compile a consolidated balance sheet.

(*b*) State the net profit of the home office exclusive of the net profit of the branch.

Trial Balance of Home Office, before Closing

Cash	$ 42 800	
Accounts Receivable	108 200	
Purchases	1 661 600	
Sales		$1 760 000
Expenses	257 000	
Branch	98 550	
Furniture and Fixtures	38 000	
Accounts Payable		89 000
Notes Payable		60 000
Capital Stock		260 000
Surplus		37 150
	$2 206 150	$2 206 150

Trial Balance of Branch Office, before Closing

Cash	$ 7 200	
Accounts Receivable	41 800	
Purchases	418 000	
Sales		$417 450
Expenses	36 000	
Home Office		93 550
Furniture and Fixtures	8 000	
	$511 000	$511 000

Merchandise Inventory at Close of Period:

Home Office	$208 000
Branch Office	55 000

The branch does not purchase any goods from outsiders. All merchandise acquired by the branch is received from the home office, and is charged on the branch books to Purchases and credited to home office, at cost plus 10 per cent.

All goods acquired by the home office, including the goods shipped to the branch, are charged to Purchases at cost. The goods shipped to the branch

are billed at cost plus 10 per cent, and are charged to the branch and credited to Sales.

At the close of the period a remittance of $5,000 by the branch to the home office was in transit.

The branch was established ten months ago, and the books have not been closed heretofore. (*Massachusetts, October*, 1922.)

12. An audit of a set of accounts, in order to determine the true profits for the years 1920 and 1921, revealed the following:

On the books of the home office, the account, Branch Office Account Current, shows a debit balance of $12,250 at December 31, 1920, which was erroneously written off to Profit and Loss. At December 31, 1921, a credit balance of $2,050 was shown and this also was transferred to Profit and Loss.

An examination of the branch-office records disclosed the keeping of asset and liability as well as revenue and expense accounts and a balance sheet as at December 31, 1920, showed a net worth of $17,700 credited to the home office. Another balance sheet, as at December 31, 1921, showed a net worth of $8,500.

Before closing of revenue and expense accounts for 1920, the relative accounts on both home-office and branch books were in agreement, except that a draft of $1,500 drawn and recorded by the branch in 1920 was paid and recorded by the home office in 1921.

The results of the closing of the branch-office accounts had not been recorded on the home-office books.

Make required adjustments and state:

(*a*) What effect said adjustments would have on the profit showing for each of the years 1920 and 1921 on the home-office books.

(*b*) What correction is necessitated in the amount of invested capital, December 31, 1920. (*American Institute of Accountants, May*, 1922.)

PROBLEMS FOR CHAPTER III

SYNTHETIC BY-PRODUCT INDUSTRIES

1. During the year ended December 31, 1917, the A. B. C. Cotton Mills produced 3,893,000 pounds of finished product. There were turned into the mill during the year 4,250,000 pounds of cotton, costing $750,000, and 175,000 pounds of yarn, costing $60,000. The stock in process at the beginning of the year amounted to 150,000 pounds, valued at $20,000, and at the end of the year to 200,000 pounds, valued at $60,000. Waste produced during the year was 420,000 pounds, and realized $26,000. The factory expenses were: superintendence, $5,000; labor, $160,000; fuel, $20,000; oil, $1,500; mill supplies, $12,500; burlap, $4,500; and starch and sizing, $7,500. For its finished product sold the company realized $1,250,000. On the first of the year the value of the finished product on hand amounted to $26,000, and at the end of the year to $78,000. The selling expenses of the company amounted to $80,000; its general expenses to $22,500; and its extraordinary expenses not applicable to the cost of production to $50,000.

Prepare a comprehensive Income account covering the year's operations and give statistics as to the sales and cost of production per pound by items

with the invisible gain or loss during the year on cotton passing through the mill. (*American Institute of Accountants, May*, 1918.)

2. A textile manufacturer operated his mill during a strike period extending from February 4, 1914, to July 8, 1914. The losses sustained by him during this period are to be compensated for by a manufacturers' association and the parties agreed to the following:

The mill has 80 looms, but the percentage of loss is to be based on a standard of 60 looms, and only 75 per cent of the looms which were operated are to be considered, in the adjustment of the loss, as having been in operation. The remaining looms are the basis for compensation.

Fixed charges were $29,263 per annum. A further loss of $4,112.45 occurred by reason of excess charges paid on loom labor, and there was a loss of materials from theft and carelessness of strike breakers amounting to $500.

The total productive loom hours accomplished were 43,064. The maximum hours per loom were 1,200. The normal production, at mill cost, would be $119,203.47. Five per cent on actual loss of production was also to be paid.

Prepare a statement showing what the manufacturer is entitled to. (*New York, January*, 1915.)

3. The following is the trial balance of the United Cotton Mills at the close of the business on December 31, 1914:

Lands	$ 230 450.00
Buildings and Machinery	360 000 00
Dwellings	10 000.00
Additions and Improvements	9 500.00
Cash	15 400.00
Accounts Receivable	100 375 00
Advances to Employees	350.00
Interest on Bonds	5 500.00
Interest and Discounts	10 000.00
Inventory, December 31, 1913:	
Manufactured Goods	50 500.00
Cotton in Process of Manufacture	34 000.00
Cotton	5 500.00
Discounts	13 150.00
Cotton	346 000.00
Maintenance and Repairs	10 560.50
Labor	100 285.50
Fuel and Supplies	35 000.00
Dyeing Expenses	37 250.00
Selling Expenses	6 950.00
Salaries	13 500.00
Office Expenses	2 100.00
Postage, Telegrams, and Telephone	3 050.00
Insurance	2 750.00
Taxes	3 500.00
Incidental Expenses	1 150.00
Real Estate Expenses	530.00

Capital Stock		$ 400 000.00
First Mortgage Bonds		100 000.00
Bills Payable		150 000.00
Accounts Payable		2 500.00
Sales—Manufactured Goods		650 505 00
Sales—Waste		10 100.50
Rent		960.00
Profit and Loss		93 285.50
	$1 407 351.00	$1 407 351.00

The inventories on December 31, 1914, were as follows: manufactured goods, $43,628.80; cotton in process of manufacture, $35,000; cotton, $6,500; fuel and supplies, $1,789.60.

During the year the factory produced 2,710,200 pounds of cotton goods. Prepaid insurance was $750; unearned interest, $2,500; factory payrolls accrued but not paid, $970.

The first mortgage bonds outstanding bear interest at the rate of 6 per cent per annum, payable semi-annually on June 1 and December 1. A reserve of $2,350 should be made for discounts.

At a meeting held on December 31, 1914, the board of directors declared a dividend of 6 per cent on the capital stock, payable on January 15, 1915, and reserved $18,000 for depreciation.

From the foregoing, you are asked to prepare: (*a*) closing entries; (*b*) exhibit of operations and statement of profit and loss; (*c*) balance sheet showing the condition of the company on December 31, 1914. (*Louisiana, June*, 1915; *South Carolina, September*, 1919.)

4. The following is a trial balance June 30, 1916, before closing, of the ledger of a textile mill:

Land	$ 10 000.00
Buildings	75 000.00
Machinery	119 138.73
Tenements	1 670.66
Finished Goods Inventory, January 1, 1916	66 984.43
Stock in Process Inventory, January 1, 1916	57 042.38
Yarn	259 882.12
Cash	12 769.19
Petty Cash	106.39
Accounts Receivable	46 085.68
Mortgage Receivable	875.00
Labor	25 979.27
Supplies	2 974.31
Repairs	956.63
Oils	50.84
Coal	1 443.20
Starch	1 390.00
Water	122.65
Finishing	15 381.54
Brokerage on Sales	660.50

Commissions on Sales	$ 4 580.67	
Discounts Allowed	1 246.84	
Insurance	679.92	
Taxes	1 502.81	
General Expense	389 39	
Freight and Express	974.34	
Telephone and Telegraph	68.72	
Traveling Expense	274.85	
Interest Paid	409.80	
Discount on Notes Payable	1 408.00	
Advertising	6 240.00	
Salaries	13 800.00	
Printing and Office Expense	654.80	
Dividends	3 375.00	
Capital Stock—Preferred 6 Per Cent Cumulative		$100 000.00
Capital Stock—Common		263 800.00
Accounts Payable		40 864.56
Notes Payable		187 500.00
Cloth Sales		137 818.07
Waste Sales		922.94
Tenement Rents Received		339.50
Discount Taken		2 873.59
	$734 118.66	$734 118.66

Inventories and items, June 30, 1916:

Finished Goods	$104 190.24
Stock in Process	71 242.39
Yarn	135 661.63
Coal	1 000.00
Starch	900.00
Supplies	1 150.00
Interest Accrued on Notes Payable	389.41
Interest Prepaid on Notes Payable	211.11
Wages Accrued	2 051.05
Unexpired Insurance	600.00
Prepaid Taxes	402.26
Prepaid Water Rates	100.00
Bad Debts	100.00
Estimated Discounts to be taken on Accounts Payable	817.29
Estimated Discounts to be allowed on Accounts Receivable	460.86

Depreciation rates per annum:

5 per cent on machinery.
3 per cent on tenements.
2 per cent on mill buildings.

Depreciation for the period of six months ending December 31, 1915, was not put upon the books. No additions have been made to the fixed assets within a year.

Estimated discounts on the accounts receivable and the accounts payable were not put upon the books January 1, 1916; these were respectively $400 and $750.

The last two semi-annual dividends on preferred stock are unpaid.

Prepare proper statements for a report to the directors as of June 30, 1916. (*Massachusetts, October*, 1916.)

5. The following trial balance of the B C Cotton Company is taken from the books after inventories and deferred charges have been posted. The accounts are ready to close for the period. The Consigned Goods account has been inactive for six months and will continue so for the present. Prepare a statement to show for the quarter ended March 30, 1918, total manufacturing expenses, cost of goods made, cost of goods sold and net profit, and submit a balance sheet as of March 30, 1918.

Trial Balance

Cloth		$ 268 337.28
Labor	$ 33 862.99	
Light	132 72	
Royalties	50.00	
Oils	38.62	
Finishing	7 455.55	
Cash	119 126.06	
Liberty Bonds	1 000.00	
Supplies	1 276.06	
Starch	800.00	
Fuel	1 455.99	
Water	202.24	
Freight Inward	1 353.99	
Accounts Receivable	63 492.58	
Accounts Payable		313.45
Notes Payable		225 000.00
Building and Machinery	341 378.14	
Tenements	1 610.99	
Insurance	350.00	
Taxes	567.71	
General Expense	542.88	
Rents Receivable		378.87
Commissions	7 121.42	
Interest Paid	2 539.90	
Discount Taken		4 016.26
Purchases, Material	162 403.68	
Surplus		168 866.14
Discount Allowed	899.50	
Capital Stock		362 500.00
Waste Sales		1 401.39
Inventory, Finished Goods, March 30	114 069.57	
Inventory, Process, March 30	31 464.02	

Trial Balance.—*Continued*

Inventory, Materials, March 30	113 860.99	
Inventory, Fuel, March 30	1 250.00	
Inventory, Starch, March 30	800.00	
Inventory, Supplies, March 30	1 300 00	
Prepaid Taxes, March 30	208.96	
Unexpired Insurance, March 30	660.41	
Prepaid Interest, March 30	5 100.00	
Consigned Goods, March 30	14 438.42	
	$1 030 813.39	$1 030 813.39

Inventories of finished goods have been credited to Cloth account and inventories of goods in process and materials to Purchase account.

Inventories January 1, 1918

Finished Goods, January 1, 1918	$132 833.85
Goods in Process, January 1, 1918	22 258.01
Materials, January 1, 1918	143 566.55

(*American Institute of Accountants, May*, 1919; *South Carolina, September*, 1919.)

6. From the accompanying trial balance and inventories of the Blankville Cotton Mills you are requested to prepare a balance sheet and statements of manufacturing cost, selling expenses, and Income account. The books were closed previously at August 31, 1908. In the twelve months ended August 31, 1909, they have produced 1,372,428 pounds of finished cloth and 161,906 pounds of visible waste. In addition to the financial and manufacturing, etc. statements, you are also requested to find (*a*) the prime cost of cotton consumed per pound; (*b*) the increase in this pound price by reason of waste made, less money received from sales of waste; (*c*) the cost of the cotton in the finished cloth per pound; (*d*) the cost to manufacture per pound; (*e*) total raw material and manufacturing cost; (*f*) gross selling price per pound of goods made and sold (include inventory in this); (*g*) selling expenses per pound; (*h*) gross profit on sales; (*i*) other expenses per pound; (*j*) profit or loss per pound on manufactured cloth.

BLANKVILLE COTTON MILLS

Trial Balance, August 31, 1909

Machinery	$118 514.99
Real Estate	48 774.48
Office Furniture and Fixtures	390.89
Unsold Stock (in Treasury)	1 650.00
Accounts Receivable	33 498.66
Cash in Bank and on Hand	7 744.68
Advances to Hands	307.28
Starch	1 859.85
Burlap and Rope	1 198.19
Insurance and Taxes	3 299.42

BLANKVILLE COTTON MILLS

Trial Balance, August 31, 1909—*Continued*

Salaries	$ 5 100.00	
Repairs	481.64	
Discounts and Commissions	11 897.62	
Freight	5 623.57	
Tallow	859.55	
Wages	31 767.27	
Supplies	7 846.34	
Expense	1 435.56	
Oil	400.28	
Fuel	5 339 75	
Discount and Interest	8 790.49	
Inventories, August 31, 1908:		
Raw Cotton, 92 B-C, 37,149 Pounds	4 134.68	
Stock in Process, 45,739 Pounds	6 960.83	
Finished Goods, 123,373 Pounds	20 114.35	
Waste, 16,134 Pounds	591.36	
Cotton Purchased, 3,161 Bales, 1,584,318 Pounds	148 919.42	
Capital Stock		$ 80 000.00
Bond Account		40 000.00
Bills Payable		77 576.73
Accounts Payable		11 154 66
Dividend Account		3.50
Sales, 1,435,376 Pounds		228 992.62
Waste, 96,597 Pounds		2 618.62
Outside Warehouse Storage Receipts		2 023.70
Rent, Operatives' Houses		1 069 07
Undivided Profits, August 31, 1908		34 062.25
	$477 501.15	$477 501.15
Inventories, September 1, 1909:		
Raw Cotton, 170 Bales, 86,700 Pounds		$ 9 970.50
Cotton in Process, 46,172 Pounds		6 123.70
Finished Goods, 56,556 Pounds		9 457.85
Goods Consigned		2 392.40
Waste		1 863.83
General Supplies		2 916.85
Fuel		265.50
Starch		578.35

August 31, 1909, there was an amount of unearned insurance of $892.70. Also accrued charges of wages, $550; commissions, $1,812.54; interest, $315.74; and taxes, $700. (*Georgia* [*date unknown*]).

7. The A B C Cotton Mill Company began its manufacturing operations on January 1, 1912. A trial balance at March 31, 1912, showed the following balances, before closing:

Debits		Credits	
Real Estate	$ 20 000.00	Bills Payable	$ 80 000.00
Mill Buildings	210 512 40	Waste, Bagging and Ties	1 419.20
Tenement Houses	18 319.90	Wages Accrued	1 619.20
Machinery and Equipment	314 416.65	Tenement Rents	760.90
Accounts Receivable	4 300.00	Accounts Payable	28 888.05
Cotton	82 319 20	Cloth Sales	98 325.28
Superintendence	600.00	Reserve for Depreciation	6 000.00
Labor—Opening, Picking, Carding	5 100.10	Capital Stock	500 000.00
Labor—Spinning and Spooling	7 810.16		
Labor—Weaving, Day Work	3 010.20		
Labor—Weaving, Piece Work	10 416.20		
Labor—Finishing	1 869.74		
Labor—Clothroom	765.00		
Mill Supplies	11 011.30		
Yard and Watch	512.19		
Fuel	3 019.20		
Wages—Engineer and Firemen	415.50		
Power Purchased	920.90		
Building Repairs	196.20		
Machinery Repairs	17.20		
Tenement Repairs	44.90		
Salary of Officers	1 800.00		
Office Salaries	600.00		
Stationery and Office Supplies	320.25		
Telephone and Telegraph	60.20		
Insurance	2 845.50		
Depreciation Expense	6 000.00		
Interest	1 500.00		
Prepaid Freight on Sales	1 605.50		
Commissions on Sales	4 737.68		
Discount on Sales	1 966.56		
	$717 012.63		$717 012.63

The cotton record showed cotton purchases for the quarter of 705,841 pounds (invoice weights), with claims in for shortages amounting to 2,714 pounds. Cotton account—as shown by the ledger—includes a charge of $3,100 to cover a loss on cotton futures in that amount.

The inventories at March 31, 1912, were as follows:

Cotton	101 707 pounds
(Market value at this date was 13 cents.)	
Cotton in Process	165 545 pounds
(No undue accumulation of stock was found at any stage in process.)	
Finished Product (Cloth)	56 590 pounds
Supplies (at Cost)	$4 300.10
Fuel (at Cost)	1 611.25
Waste (at Market Value)	4 300.10
Value of Prepaid Insurance	2 425.30
Prepaid Interest on Notes Payable	214.60
Accrued Taxes Estimated at	710.20
Cloth Production	366 420 pounds

From the foregoing information prepare: (*a*) Manufacturing and Profit and Loss accounts for the three months ending March 31, 1912; (*b*) balance sheet at March 31, 1912; (*c*) a summarized statement of the average cost per pound of finished product for the three months ended March 31, 1912. (*North Carolina, August*, 1913.)

8. The product of a garment factory consisted of only two grades, *viz.*, grade A and grade B.

There was no difference in the cost of materials and supplies consumed in the two grades, but there was a difference in other manufacturing expenses which it was impossible to keep separate as to the grades. If the factory ran exclusively on grade A, the production would amount to 2,800 garments per week; if it ran exclusively on grade B, the weekly production would amount to 3,500. The factory, however, made both grades at same time. You were called in at the end of first month's operation to audit the books and prepare cost statement. Your cost statement showed that the average cost per garment was $6.60, excluding materials and supplies that cost $5 per garment.

Production of grade A was 8,800; grade B, 3,200.

The inventory consisted of:

Grade A	1 600 garments
Grade B	400 garments

Prepare statement showing the value of inventories for the period. (*North Carolina, November*, 1919.)

9. From the following data furnished by a woolen mill, prepare statements showing the following information: (*a*) number of pounds of product made; (*b*) number of pounds of visible and invisible waste; and (*c*) waste percentage.

	Pounds
Inventories at beginning of period:	
Finished Product	300 000
Wool	43 350
Stock in Process	30 000
Inventories at end of period:	
Finished Product	100 000
Wool	125 000
Stock in Process	60 000
Sales and purchases:	
Sales of Finished Product	5 500 000
Wool Purchased	6 000 000

(*North Carolina, November,* 1918.)

10. A cotton yarn manufacturer is making only three sizes of carded yarns, *viz.*, 16, 20, and 26.

The ratio of quantity production is one-third for each size, and the total annual production amounted to 2,000,000 pounds.

The theoretical weekly capacity per spindle is as follows: size 16 is 3.22 pounds, size 20 is 2.34 pounds, and size 26 is 1.66 pounds.

The average manufacturing cost for the total annual production was 11.254 cents per pound.

Submit computation showing how you would determine the separate cost per pound for each of the sizes. (*North Carolina, November,* 1918.)

11. The product of a cloth mill consisted of three grades of piece goods, designated as grades A, B, and C. The theoretical production per week per loom was as follows:

	Pounds
A	24.30
B	28.60
C	32.20

The entire annual production of the grades was as follows:

	Pounds
A	100 000
B	60 000
C	140 000

The raw materials used cost an average price of 60 cents per pound, and the total manufacturing expenses amounted to $120,000.

Prepare a statement showing the cost per pound for each of the three grades. (*North Carolina, June,* 1919; *North Carolina, September,* 1919.)

12. You find your client's books have been closed and the Cotton account, after an analysis, appeared as follows:

	Pounds	Value
Debits		
Inventory beginning of Year	100 000	$ 10 000
Purchases during Year	2 000 000	180 000
Freight and Hauling Charges		1 000
Hedging Contracts		20 000
	2 100 000	$211 000
Credits		
Cotton Put in Process during Year	2 090 000	$188 100
Cotton Claims	100	2 000
Profits on Hedging Contracts		8 000
	2 090 100	$198 100
Inventory End of Year	9 900	12 900
	2 100 000	$211 000

State clearly what corrections, if any, you would make. (*North Carolina, June*, 1916.)

13. The trial balance of a cotton mill at the close of its first fiscal year, December 31, 1916, showed the following:

Cotton Purchases	$2 125 808.86	
Miscellaneous Factory Expense	353.93	
Freight In	2 921.73	
Loss from Hedges	9 149.05	
Factory Labor	303 733.94	
Fuel	30 528.74	
Cases and Cones	47 041.01	
Roller Coverings	5 836.18	
Lights	56.35	
Repairs	6 115.83	
Depreciation of Plant	53 921.73	
Yarn Sales		$2 555 899.64
Bagging and Ties Sales		9 739.21
Waste Sales		56 426.53
Freight Out	63 340.12	
Cash Discounts Allowed Customers	207 447.49	
Insurance	5 715 80	
Refund of Insurance		316.53
Storage Space Sold		55.90
Taxes	16 458.63	
Per Diem Paid Directors	4 475.00	
Salaries	16 374.40	
Telephone and Telegraph	1 522.26	
Postage	213.02	
Barbecue	88.98	

Cleaning Ditches	$ 28.61	
Subscription to County Fair	25.00	
Registrations, Fees, Etc.	76.08	
Stationery and Supplies	237.89	
Attorney Fees, Court Costs, and Damages	1 130.94	
Christmas Tree	42.90	
Hauling and Moving	29.00	
Contributions to Pastors' Salaries and School	405.00	
Office Rent	1 004.94	
Miscellaneous Subscriptions	63.00	
Spindle Assessment and Association Dues	217.53	
Traveling Expenses	1 489.89	
Revenue Stamps	53.40	
Miscellaneous Office Expense	77.52	
Auditing	350.00	
Medicines and Hospital	99.75	
Typewriter Exchanges	112.50	
Freight Claims Collected		$ 97.49
Rent from Farm		249.09
Interest Collected		2.20
Interest Paid	52 895.16	
Bond Discount Written Off	3 141.67	
Loss on Bad Accounts	235.92	
Loss on Sale of Horse	130.00	
Dividends Paid on Preferred Stock	32 492 29	
Dividends Paid on Common Stock	2 094.96	
Profit on Stock Sold		504.95
Cash in Merchants National Bank	1 149.10	
Cash in Virginia Trust Company	222.77	
Accounts Receivable	16 765.38	
Mortgages Receivable	3 248.02	
Bills Receivable	900.00	
Discount on Bonds Unapplied	2 858.33	
Plant	478 434.72	
Reserve for Depreciation of Plant		53 921.75
Office Furniture and Fixtures	478.55	
Overdraft Farmers and Merchants Bank		2 974.99
Accounts Payable		3 611.83
Bills		461 105.92
Unpaid Taxes		5 155.84
Bonds Payable		100 000.00
Capital		251 532.00
	$3 501 593.87	$3 501 593.87

The following were the inventories December 31, 1916:

Raw Cotton	$341 923.48
Cotton in Process	18 563.82
Fuel	951.56
Waste	747.14
Yarn	1 239.57
Cases and Cones	789.48
Interest Paid in Advance to Banks	9 757.28

From the above information prepare a balance sheet; manufacturing, trading, and profit and loss statement. (*North Carolina, August*, 1917.)

14. You, as a practicing accountant, received the following letter from one of your clients:

"I have entered into an agreement to purchase all of the outstanding stock of a certain cotton mill corporation which is in active business, the price to be an amount equal to its net worth at June 30, 1920, less the accrued federal taxes and plus two times the net profits earned during the six months ending June 30, 1920.

"I have enclosed a trial balance which has been audited and found correct, at close of business June 30, 1920, also a statement of the accepted inventories and a balance sheet at beginning of the year."

Balance Sheet, December 31, 1919

Assets		Liabilities	
Cash on Hand	$ 50 000	Notes Payable	$ 100 000
Accounts Receivable	180 000	Accounts Payable	10 000
Notes Receivable	75 000	Vouchers O. S.	4 000
Treasury Stock (150 Shares)	20 000	First Mortgage Bonds	150 000
Treasury Bonds at Par	50 000	Reserve for Depreciation	90 000
Cotton Inventory, 300,000 Pounds	120 000	Reserve for Bad Accounts	1 000
In Process, 50,000 Pounds	30 000	Reserve for Extinguishing Bonds	50 000
Supplies	10 000	Appreciation Realized	30 000
Finished Product, 80,000 Pounds	80 000	Common Stock	280 000
Cost of Plant	300 000	Preferred Stock	200 000
Good-will Purchased	100 000	Surplus	100 000
	$1 015 000		$1 015 000

Inventories, June 30, 1920

Cotton on Hand	400 000 pounds	Supplies	$15 000
Stock in Process	50 000 pounds	Depreciation is charged at rate of 5 per cent on March 1, 1913, valuation of $400 000.	
Finished Product	100 000 pounds		

Trial Balance, Covering Six Months Ending June 30, 1920

Debits		Credits	
Cash	$ 108 500	Waste Sales	$ 60 000
Accounts Receivable	200 000	Product Sales, 980,000 Pounds	1 360 000
Notes Receivable	150 000	Rents from Cottages	5 000
Bonds in Treasury	50 000	Notes Payable	150 000
Treasury Stock	20 000	Vouchers O. S.	9 000
Inventories—December 31, 1919:		Accounts Payable	20 000
Cotton, 300,000 Pounds	120 000	First Mortgage Bonds	150 000
In Process, 50,000 Pounds	30 000	Reserve for Depreciation	90 000
Finished Product, 80,000 Pounds	80 000	Appreciation Realized	30 000
Supplies Inventory	10 000	Reserve for Extinguishing Bonds	50 000
Plant at Cost	300 000	Reserve for Doubtful Accounts	1 000
Cotton Purchased, 1,500,000 Pounds	847 500	Common Stock	280 000
Supplies Purchased	45 000	Preferred Stock	200 000
Labor and Superintendence	220 000	Surplus	100 000
Repairs and Maintenance	15 000		
Salaries of Executives and Office	50 000		
Telegraph and Telephone	2 000		
Interest Paid	10 000		
Insurance (Fire)	5 000		
Domestic Taxes	6 000		
Stationery and Printing	1 000		
General Office Expenses	2 000		
Discounts on Sales (Cash Discounts)	10 000		
Commissions on Sales	50 000		
Prepaid Freight on Sales	5 000		
Good-will Purchased	100 000		
Federal Taxes for 1919	40 000		
Dividends Paid March 1,1920	28 000		
	$2 505 000		$2 505 000

Prepare the following:

(*a*) Balance sheet June 30, 1920.

(*b*) Cost statement covering six months ending June 30, 1920.

(*c*) Profit and Loss account covering same period.

(*d*) Statement of accrued income and profits taxes for the six months ending June 30, 1920.

(e) Statement of how you arrive at value of inventories of cotton, stock in process, and finished product.

(f) Statement of what the outstanding stock will cost based on contract of purchase. (*North Carolina, June*, 1920.)

15. A separate account appears on the cost ledger of a large silk mill for each department, one of which (the silk-winding department) is known as C. In this account the following entries appear: inventory of wound silk, January 1, 1916, weight 795.34 pounds, value at \$5.10 per pound, \$4,056.23, labor in process \$79.53.

The January charges to the department of unwound silk delivered to it were: weight, 3,613.83 pounds, and actual labor paid, \$415.

The credits to department C for January were, for wound silk delivered to department F, 3,612.68 pounds; to department G, 9.10 pounds; to department E, 60.38 pounds; to department B, 10.13 pounds.

Prepare the following as of January 31, 1916:

(a) A ledger account for this department.

(b) The balance of silk in the department and its value with total estimated labor on it, assuming the balance to be for silk wound and charged for.

(c) The loss or gain on estimated cost of labor.

(d) The actual average cost of winding for January.

(e) The total of charges to the succeeding departments on the estimated basis.

The cost of silk in this department is \$5.10 per pound, the estimated average cost of winding 10 cents per pound. (*New York, June*, 1923.)

16. In your audit of the books of a spinning mill for its first three months of operation, you were requested to value the inventories of finished and partially finished product on a cost basis. The condensed trial balance was as follows:

Cash	\$ 10 000	
Cotton Inventory, 10,000 Pounds	3 000	
Land, Buildings, and Machinery	500 000	
Waste Sales, 44,000 Pounds		\$ 1 500
Mill Wages	18 000	
Mill Wages Accrued		600
Power and Fuel	3 300	
Supplies	3 000	
Cotton Used, 300,000 Pounds	56 700	
Yarn Sold, 150,000 Pounds		87 000
Depreciation on Machinery and Buildings	5 000	
Reserve for Depreciation		5 000
Discount on Sales	2 000	
Commission on Sales	3 350	
Interest on Notes Payable	600	
Interest Accrued on Notes Payable		100
Salaries, Insurance, Taxes, Etc.	2 000	
Notes Payable		10 000
Accounts Payable		12 750
Capital Stock		490 000
	\$606 950	\$606 950

The mill is a well-balanced mill (that is, there is no undue accumulation at any one stage of process). It makes but one number of yarn. The inventories at the end of the quarter, which are not noted on the trial balance, follow: Supplies, \$475; coal, \$225; cotton in process, 50,000 pounds; yarn, 50,000 pounds.

Prepare a balance sheet and Operating and Profit and Loss accounts. Also, show how you arrived at cost values. (*North Carolina, November,* 1923.)

17. From the data given below make a calculation of the cost of a woolen fabric.

COST OF YARN USED

The fabric has 50 yards to a piece, or "cut," as it is called. There are 1,640 threads of yarn running lengthwise in the warp; that is, the fabric has 1,640 ends. The filling, or threads running crossways of the fabric, has 22 threads, or picks, to the inch. The warp yarn in one piece weighs 66 pounds and the filling yarn 59 pounds. The size of the yarn is known as 234-run and it is made from a mixture of wool No. 441. The cost of this mixture is \$0.41 per pound. Of a wool mix, 100 pounds will produce only 76.46 pounds of warp and filling yarn.

During the process of weaving there is yarn waste estimated at 5 per cent.

LABOR AND EXPENSE

Spooling.—The warp yarn must be wound on spools before the warp can be prepared. Spooling is paid for at piece-work rates. The rate is \$0.2223 per 1,000 yards of 40 ends. The warp has 50 yards of 1,640 ends.

When the fabric comes off from the loom, it measures 45 yards instead of 50, due to "take up" in weaving. The spooling department expense per woven yard is \$0.00271.

Dressing.—After the warp yarn has been spooled, it has to be wound from the spools onto the loom beam, which process is called "dressing." It costs \$0.27 per piece to do this.

Drawing in.—The warp ends next have to be drawn in through the eyes in the loom harnesses which actuate the warp, so that the shuttle carrying the filling can pass over and under the proper threads, thereby weaving the fabric. Drawing in is paid for at piece-work rates, the rate being \$0.605 per 1,000 ends. The expense of labor in the drawing-in operation for inspectors, etc. is \$0.00141 per woven yard.

Weaving.—The principal operation is that of weaving. This is paid for at piece-work rates. The rate for a 22-pick fabric is \$0.1021 per woven yard. Day workers, such as loom fixers, have to be provided for in the cost calculation by adding \$0.03375 per woven yard.

Burling.—Next, the woven fabrics have to be inspected and any knots made by the weavers pulled through. This costs \$0.00973 per woven yard.

Sewing.—Wrong threads have to be sewed in, the sewing operation costing \$0.01301 per woven yard.

Wet and Dry Finishing.—The last operation is that of finishing the woolen goods. During the process the fabric shrinks, due to the fulling qualities of wool. The average length of a piece, finished, is 38.7 yards. The average cost per yard for the finishing process is \$0.1680.

In the weaving department, there are power, floor space, fixed charges, and supervision still to be considered. These are estimated to cost 73 per cent of the piece-work weaving department labor. (*North Carolina, November*, 1923.)

18. The XYZ Chemical Company manufactures one main product only, known as "Saltero," and a by-product, known as "Scrapto."

From the following information, calculate the profit per ton (2,000 pounds) of Saltero on every ton sold:

Saltero sells for $600 per ton. The selling and administration charges are 20 per cent of the selling price. This product is made from three ingredients, N, O, and P, in the following proportions and at the following costs:

N	20 per cent costs $100 per ton
O	30 per cent costs $ 50 per ton
P	50 per cent costs $ 30 per ton

Handling and storage charges amount to 10 per cent of the cost of each ingredient.

The plant is divided into five manufacturing departments, of which A, B, C, and D are engaged in the manufacturing of Saltero and E in the recovery of the by-product, Scrapto.

The following table shows the cost of direct labor per ton of product handled and the percentage of department factory expense to the direct labor:

	Department	Direct Labor per Ton	Percentage of Departmental Factory Expense to Direct Labor, Per Cent
A	Mixing	$25.00	75
B	Furnaces	12.50	300
C	Washing and Drying	15.00	100
D	Grinding and Packing	50.00	50

General factory expenses that cannot be charged to any one department amount to 50 per cent of the total direct labor.

In department B there is a yield of only 75 per cent of Saltero from the tonnage of the ingredients mixed; the other 25 per cent is treated in department E and one-half of this 25 per cent is recovered as the by-product, Scrapto, the other half being entirely waste.

A net profit of $40,000 per ton is made on the sale of Scrapto after all expenses of every kind are charged against it. No charge is made against Scrapto for the raw material from which it is recovered. (*American Institute of Accountants, November*, 1922.)

PROBLEMS FOR CHAPTER IV

SYNTHETIC NON-BY-PRODUCT INDUSTRIES

1. Iron Company A purchases on January 1, 1912, all the outstanding capital stock of Iron Company B, and thereby acquires among other assets two blast-furnace plants, *viz.*, furnace No. 1 and furnace No. 2.

Furnace No. 1, of about 100 tons daily capacity, produces 18,000 tons from January 1, to July 1, 1912, and is blown out on this latter date for general repairs to the blowing engines. On September 1, 1912, operations are resumed after spending $6,000. The furnace then produces 40,000 tons and is again blown out on October 1, 1913. This time furnace and stoves are completely relined and, with the entire power plant and other equipment brought to full efficiency at a cost of $40,000. It is expected that henceforth a provision of 20 cents per ton of pig iron produced will be adequate to provide for future relining. It is blown in on January 1, 1914.

Furnace No. 2, of about 150 tons daily capacity, has been newly constructed. It was blown in on the date of purchase and has produced to December 31, 1913, 110,000 tons of iron. No more than ordinary wear and tear is perceptible, and the furnace may run for another year before a general relining, costing about $30,000, is necessary.

How should the charges for relining furnace No. 1 be disposed of and what provision should be made for the future relining of furnace No. 2 on December 31, 1913? *(Pennsylvania, November, 1914.)*

2. From the following trial balance and information furnished draw up: (*a*) a cost sheet; (*b*) a statement of profits and income; and (*c*) a balance sheet, showing also such intermediary accounts (if any) as may be necessary to connect (1) the cost sheet with the statement of profits and income; and (2) the statement of profits and income with the balance sheet.

The production of pig iron for the year was 115,000 tons, and the materials consumed or used to obtain this production were: ore, 240,000 tons; coke, 210,000 tons; limestone, 40,000 tons.

The bond interest accrued and not taken up on the books was $5,000, while interest amounting to $4,000 on bills payable was paid in advance. There was $5,000 of furnace labor accrued but not paid. The taxes accrued but not taken up on the books were $2,300, exclusive of federal corporation tax, which should be provided for, and insurance premiums paid in advance amounted to $1,800. A provision of 15 cents per ton of production should be made for relining furnaces; and the directors authorized a further provision for general depreciation of buildings, plant, and equipment of $50,000. The discount on bonds should be absorbed over the life of the bonds and one-fifth proportion should be written off the exploration and development expenditures.

A. B. IRON COMPANY

Trial Balance, December 30, 1911

Real Estate	$ 200 000	
Buildings	500 000	
Furnaces, Plant, and Equipment	1 400 000	
Capital Stock Authorized		$1 000 000
Stock Subscriptions Unpaid	200 000	
Stock in Treasury	50 000	
5 per cent First Mortgage Gold Bonds Due December 30, 1921, Authorized		500 000
5 per cent First Mortgage Gold Bonds Redeemed	100 000	
Purchase Money Obligations		200 000

A. B. IRON COMPANY

Trial Balance, December 30, 1911.—*Continued*

Ore—248,620 Tons at $2.50 per Ton	$ 621 550	
Advances on Ore Contracts	50 000	
Coke—211,400 Tons at $3.25 per Ton	687 050	
Limestone—45,900 Tons at $1.00 per Ton	45 900	
Supply Stores on Hand December 30, 1911	25 000	
Customers' Accounts	350 110	
Bills Receivable	50 000	
Sundry Debtors	10 000	
Bills Payable		$ 350 000
Accounts Payable		310 000
Reserve for Bad Debts		12 000
Cash in Bank	235 000	
Working Funds	5 000	
Depreciation Reserve		115 000
Blast-furnace Relining Fund		45 000
Pig Iron on Hand January 1, 1911 (6,500 Tons)	97 500	
Discount on Bonds	20 000	
Exploration and Development Expenditures	17 500	
Surplus January 1, 1911		583 887
Furnace Labor	138 750	
Handling and Delivering Ore to Ore Stock	24 862	
Handling and Delivering Coke to Coke Stock	10 570	
Handling and Delivering Limestone to Limestone Stock	2 245	
Repairs and Maintenance	15 500	
Electric Light and Power	9 500	
Blowing	10 000	
Laboratory Expense	4 000	
Yard and Switching Expenses	14 200	
General Works Expense	19 750	
Taxes	5 200	
Insurance	7 800	
Pig-iron Sales (109,500 Tons)		1 971 000
Allowances to Customers	54 500	
Salesmen's Salaries and Commissions	50 900	
Traveling Expenses	2 500	
Stationery and Office Expenses	4 500	
General and Administration Expenses	15 000	
Profit on Sales of Purchased Pig Iron		25 500
Miscellaneous Income		17 500
Interest on Bonded Debt	15 000	
Interest on Bills Payable	22 000	
Expenditures Incurred on Account Relining Blast Furnace	38 500	
	$5 129 887	$5 129 887

In calculating the cost units, you need not figure beyond two places of decimals; and in making these calculations the operating expenses (as distinct from materials) may be grouped into two classes, *viz.;* (*a*) labor and (*b*) all other operating expenses. All other unit costs may be ignored. (*Illinois, May*, 1912.)

3. The books of a corporation with capital of $100,000, engaged in the manufacture of foundry castings, show after inventory, December 31, 1914, materials and finished work on hand as follows: pig iron, $5,500; heavy scrap iron, $300; foundry scrap, $165; coke, $640; limestone, $43; other materials, $690; finished casting, $250.

Inventory January 1, 1914, as follows: pig iron, $10,600; heavy scrap iron, $500; foundry scrap, $150; coke, $954.50; limestone, $65; other materials, $1,140; finished castings on hand, $1,075.

Purchases during the year as follows: pig iron, $125,600; heavy scrap iron, $5,400; foundry scrap, $125.60; coke, $16,000; limestone, $375; other materials, $7,325; cash discount on purchases, $1,340.60; freight, $750.34.

The sales were $250,000; carriage outwards, $1,265.10; discount on sales, $2,500; other expenditures, such as taxes, $325; insurance, $175; labor, $53,250; foundry foreman, $2,100; office salaries, $2,500; travelers' salaries and expenses, $4,250; repairs and upkeep of office, $350.

Fifteen per cent depreciation on plant valued at $50,000.

Prepare statement showing production cost and year's profit from operation. (*Virginia, October*, 1916; *Indiana, June*, 1918.)

4. The Newton Foundry and Machine Company has on hand at the beginning of the month $50,000 worth of steel and, in addition, material sufficient to manufacture 100,000 pounds of castings.

The following is a summary of transactions of the several departments of the business for April:

The foundry department manufactures castings for its own shops and also for customers. One hundred thousand pounds of castings are made during the month at a cost of 10 cents per pound; 50 per cent of the product goes to the machine shop at 12 cents per pound; 35 per cent goes direct to customers at 15 cents per pound; 10 per cent is defective and 5 per cent remains on hand at the end of the month.

The machine shop withdraws from stores steel to the value of $50,000. Productive labor on the product amounts to 100 per cent of the cost of the material and the factory overhead to 150 per cent of the productive labor. The finished product of the department is disposed of at cost plus 10 per cent, as follows: 60 per cent to the assembling department; 10 per cent to the shipping department to fill customers' orders; 15 per cent to the storeroom; 5 per cent is defective and 10 per cent remains in process.

The assembling department labor and overhead amounts to 20 per cent of the cost of the product to this department. Ninety per cent of the product received is completed and delivered to the shipping department, crated and shipped to customers.

Allowing 5 per cent of factory cost for shipping department expense, 10 per cent for selling expense, and 10 per cent for profit, prepare departmental Factory accounts and Trading account to reflect the foregoing transactions embodying the following:

One whole shipment of merchandise was returned by a customer as not being in accordance with specification and unfit for his purpose. The billing price of this shipment was \$10,164; the cost of the assembled product was \$8,000.

Give summary of inventories on hand at the close of the period with comments regarding values, and submit suggestions for improvement in the methods of accounting. (*American Institute of Accountants, November*, 1923.)

5. The Maryland Foundry Company operates, for the manufacture of general iron works, a factory situated at a distance from the main office. All shipments are made from the factory, and all bills for sales are made by the main office.

No cost accounts have been kept in the past, but they are now desirous of installing a proper cost system, including factory, work in process, and stores, of ledgers at the factory. You are handed the following trial balance of their books as of June 1, 1919, the beginning of their fiscal year, as a basis for opening new records.

Cash	\$ 5 674.10	
Accounts Receivable	48 736.54	
Bills Receivable	8 940.76	
Machinery at Factory	25 780.94	
Small Tools and Supplies	3 760.92	
Office Buildings	5 000.00	
Factory Buildings	46 978.60	
Finished Goods Inventory	25 760.74	
Partly Finished Goods Inventory	16 987.56	
Raw Materials Inventory	12 879.25	
Factory Petty Cash Fund	800.00	
Bills Payable		\$ 12 760.00
Vouchers Payable		15 621.24
Capital Stock		150 000.00
Surplus		22 918.17
	\$201 299.41	\$201 299.41

During the month of June, 1919, the following transactions occurred:

Factory wages paid, \$16,798.25. Unclaimed wages amounted to \$476.54, which are held at the factory until called for Of the total amount of labor, \$12,578.22 is direct labor, and the balance indirect.

Materials purchased and received for use in factory work amounted to \$24,254.73. Requisitions on the storekeeper for materials used in manufacture amounted to \$18,234.87. Requisitions for materials used in repairs to machinery, shafting, etc. amounted to \$756.26. Requisitions for small tools and supplies amounted to \$396.92.

Special jobs completed and shipped cost, to make, \$28,378.34. Stock orders completed amounted to \$5,389.27. Sales of finished goods from stock amounted to \$7,342.53.

Factory expenses for insurance, water, rents, taxes, etc. amounted to \$3,897.23. Depreciation on machinery is to be taken care of by setting up a reserve at the rate of 12 per cent per annum.

Show an abstract of:

(a) Journal entry for general books to open factory ledger.

(b) An abstract of all factory ledger accounts as they should appear after the entries for June have been made, stating, by way of memo, under the title of the several accounts, how they are supported by the auxiliary factory records controlled by them.

(c) Trial balance of factory ledger as at June 30, 1919. (*Maryland, October*, 1919.)

6. The Michigan Machine Works find on December 31, 1915, that their heavy orders make it undesirable to suspend operation for inventory taking, but instruct you to close the books and prepare a statement on the basis of previous years' experience. The trial balance is as follows:

Imprest Cash	$ 100	
Payroll Fund	500	
First and Old Detroit National Bank	14 000	
Notes Receivable	42 000	
Accounts Receivable	222 000	
General Stores	550 000	
Productive Labor—Factory	375 000	
Productive Labor—Foundry	70 000	
Manufacturing Expense—Factory	200 000	
Manufacturing Expense—Foundry	35 000	
Commercial Expenses	125 000	
Real Estate	15 000	
Buildings—Factory	175 000	
Buildings—Foundry	50 000	
Patterns	12 000	
Dies	8 000	
Office Furniture and Fixtures	2 500	
Automobiles and Trucks	6 000	
Factory Equipment	300 000	
Foundry Equipment	50 000	
Treasury Stock	120 000	
Treasury Bonds	150 000	
Taxes	4 000	
Bond Issue Expense	12 000	
Insurance	3 000	
Bills Payable		$ 160 000
Notes Receivable Discounted		28 000
Accounts Payable		190 000
Salaries and Accrued Payroll		30 000
Capital Stock		500 000
Surplus		6 700
Preferred Stock		250 000
Bonds		240 000
Accrued Expenses		5 000
Accrued Dividends (Preferred)		8 400
Reserve for Bad Debts		26 000
Reserve for Depreciation—Factory		44 000

Reserve for Depreciation—Foundry		$ 15 000
Sales—Factory		880 000
Sales—Foundry		150 000
Sales—Scrap		4 000
Cash Discount		1 500
Miscellaneous Earnings		2 500
	$2 541 100	$2 541 100

Apportionment of Insurance account:	
Factory	$1 500
Foundry	500
Unexpired	1 000
Apportionment of Taxes account:	
Commercial Expense	$1 000
Factory	1 000
Foundry	300
Unearned	1 700

You find it necessary to make adjustments on account of these considerations: depreciation on factory buildings, 4 per cent; foundry buildings, 5 per cent; factory equipment, 6⅔ per cent; foundry equipment, 10 per cent; automobiles and trucks, 25 per cent; office furniture, 10 per cent; patterns, 15 per cent; dies, 25 per cent.

The bonds mature twelve years later, having been issued three years before.

Analysis of the results for the preceding three years shows that the following percentages obtained:

	Factory, Per Cent	Foundry, Per Cent
Labor in Product	33⅓	30
Material in Product	25	30
Manufacturing Expense in Product	20	15
Gross Profit	21⅔	25
	100	100

Prepare balance sheet, manufacturing, trading, and profit and loss statement and Surplus account. (*Michigan, December,* 1915.)

PROBLEMS FOR CHAPTER V

ANALYTIC BY-PRODUCT INDUSTRIES

1. The following are the trial balance and the inventory of the Georgia Cotton Oil and Manufacturing Company, as of June 9, 1909. The books were closed last, June 16, 1908.

Trial Balance, June 9, 1909

	Debit	Credit
Plant	$ 50 552.30	
Real Estate	2 500.00	
Stinson Gin Building	2 653.45	
Office Fixtures	242.73	
Cash on Hand and in Banks	2 324.91	
Accounts Receivable	1 002.18	
Cottonseed, 4,828,832 Pounds	42 185.68	
Mill Labor	3 050.76	
Salaries	2 069.41	
Fuel	2 282.46	
Interest, Exchange, and Discount	1 113.31	
Press Cloth	1 622.94	
Meal Bags	943.83	
Taxes	597.50	
Mill Expenses	519.23	
Hull Sacks	194.25	
Office Expense	97 63	
Telegraph and Telephone	84.70	
Traveling	68.54	
Insurance	150.08	
Lubricating Oil	131.92	
Repairs and Supplies	655.20	
Oil Inventory, June 15, 1908, 35,357 Gallons	1 725.00	
Meal Inventory, June 15, 1908, 82,000 Pounds	1 027.00	
Hulls Inventory, June 15, 1908, 136,000 Pounds	408.00	
Linters Inventory, June 15, 1908, 7,418 Pounds	111.28	
Loss by Burglary	9.32	
Capital Stock		$ 50 000.00
Accounts Payable		273.24
Oils Sales, 812,167 Pounds		33 964.19
Meal Sales, 1,987,600 Pounds		23 475.06
Hull Sales, 1,665,246 Pounds		4 684.01
Linter Sales, 133,610 Pounds		1 421.78
Receipts from Standard Gin Company		112.88
Receipts from Farmers' Gin Company		734.40
Receipts from Storage		1 203.01
Profit and Loss		2 455.04
	$118 323.61	$118 323 61

Inventories, June 9, 1909

Meal, 68,500 Pounds	$976.12
Hulls, 73,500 Pounds	220.50
Linters, 4,343 Pounds	86.86
Seed, 3,920 Pounds	34.22
Hull Sacks	10.70
Fuel	30.00
Supplies and Repairs	539.15

Warehouse storage accrued to June 9 amounted to \$748.22.

You are requested to extract from this data a balance sheet and a statement of expenses and earnings from June 16, 1908, to June 9, 1909, showing: the average cost per ton of seed worked for every purchase; Material and Expense account; average price per ton, pound, or gallon received for the total sales of product; cost per ton of seed worked; working cost; then total prime and working cost; and price (per ton of seed worked) received for product sold. Show profits per ton on the crushing operations and receipts from other income separately. Show also the yields in pounds (7½ pounds crude oil to gallon) for each of the four products, oil, meal, hulls, and linters, and show the average yield in pounds for the four products per tons of seed crushed.

You are also requested to make such comment on these costs as may seem necessary. *(Georgia [date unknown.])*

2. Accounts payable, campaign 1911, \$1,055.11; sums due from farmers for beet seed supplied during season of 1911, \$1,000; sums due to farmers for beets supplied factory during same campaign, \$15,623.03; sum due from Ontario government as bounty on beets grown during campaign of 1911, \$4,905; interest due and unpaid on bond issue, \$5,500; interest due and unpaid on corporation loan, \$624.25; provision for bad and doubtful accounts, \$402.92; interest due and unpaid on loan for construction purposes, \$750.

Stock subscription and charges appear in the stock ledger, amounting to \$27,925, which have not been entered in the general ledger; of this amount, \$14,900 has been issued as bonus on shares sold and paid for. It is estimated that not more than \$23,000 will be realized out of subscriptions, including the additions made above, and this asset in the statement of affairs is to be based on the realization as stated.

Interest is due to creditors upon extension notes given two years previous, \$1,192; and it is found that an officer of the company has collected \$275 in payment of the stock which he failed to account for; of this sum \$261.60 is added to accounts receivable, and \$13.40 is charged in the campaign of 1911 as general expenses.

From the information given above, make the adjusting entries necessary and prepare: (a) Profit and Loss account, divided as between "campaign 1911" and general profit and loss; (b) statement of assets and liabilities divided as between "available or cash assets" and "current or floating liabilities," and "permanent or fixed assets" and "bonded and capital liabilities;" (c) Impairment or Deficiency account.

Trial Balance of a Sugar Manufacturing Concern on April 30, 1912

Accounts Receivable	$ 801.73	
Accounts Payable		$ 24 875.70
Acreage, Campaign 1911	3 154.33	
Beet Accounts, Campaign 1911	18 438.53	
Bills Receivable	291.15	
Bills Payable		133 600.00
Bonds		150 000.00
Capital Stock		237 225.00
Buildings and Plant	400 000.00	
Construction Company (Overpayment)	613.98	
Cooperage Account, Campaign 1911	952.11	
Coke, Campaign 1911	379.30	
Chemicals, Campaign 1911	327.67	
Coal, Campaign 1911	10 369.49	
Electric Plant	4 829 47	
Sugar and Molasses on Hand	32 800.31	
Inventory, Supplies	5 164.74	
Filter Cloth Account, Campaign 1911	705.07	
General Expenses, Campaign 1911	651.54	
Interest and Discount, General	2 757.33	
Interest and Discount, Campaign 1911	1 224.25	
Insurance and Taxes	162.45	
Legal Account, General	916.64	
Limestone Account, Campaign 1911	599.93	
Profit and Loss, April 30, 1911	68 781 42	
Oil, Grease, and Waste, Campaign 1911	193.34	
Cash on Hand	92.17	
Cash in Bank	1 666.18	
Real Estate	3 429.20	
Subscribers (Unpaid Stock)	33 195.24	
Salary Account, Campaign 1911	697.65	
Sugar House Supplies, Campaign 1911	1 118.80	
Seed Account, Campaign 1911	1 196.70	
Loan from Town Council		25 000.00
Wages, Campaign 1911	9 220.10	
Molasses, Sales Account		1 229.81
Sugar and Molasses Account		32 800.31
	$604 730 82	$604 730.82

(*Institute of Chartered Accountants, Ontario* [*date unknown*].)

3. Prepare statements showing cost to produce and profit on sales of a small creamery, the books of which show as follows:

January 1, 1915, butter on hand, 1,000 pounds, valued at $350; gathered and sweet-cream purchases, 400,000 pounds, purchased on basis of butter-fat test at 30 cents per pound butter fat; coloring matter, $250; other miscellaneous manufacturing supplies, $175; freight and commission on purchases, $325; labor cost for year, $9,500; insurance and taxes, $165.49; factory light and power, $975; depreciation on plant, $685.

Inventory December 31, 1915, 485 pounds butter, valued at cost; other expenses, such as office salaries, \$5,635.50; postage, \$175; repairs to office, \$73.95.

Sales, \$125,565; allowances for losses on shipments (to patrons), \$143.75.

Assume that 1¼ pounds cream tests 1 pound butter fat, and 1 pound fat produces 16⅔% in excess weight of fat.

Show selling weight and price per pound realized from sales. (*Indiana, June*, 1916; *Virginia, October*, 1916.)

4. The Acme Milling Company, located at Centerburg, shows the following data for a recent fiscal year:

Wheat bought from farmers at the elevator door, 1,050,000 bushels at an average of \$1.35.

Wheat option on 150,000 bushels, at \$1.50 f.o.b., Overton, from which point freight to Centerburg is 18 cents per bushel.

Sales

Patent Flour	149 000 barrels,	average, \$10	\$1 490 000
Clear Flour	49 700 barrels,	average, 6	298 200
Middlings	3 730 tons,	average, 22	82 060
Bran	4 970 tons,	average, 12	59 640
Screenings	1 500 tons,	average, 6	9 000

All, except screenings, sold f.o.b., at port of export, through brokers who receive commissions on:

Flour	at \$0.50 per barrel
Middlings	at 1.00 per ton
Bran	at 0.50 per ton

Screenings are sold in bulk at mill door, all other products sacked, and sacks for the year are purchased or contracted for at:

Flour	all 98-pound sacks at	\$150 per M	500 000 sacks
Middlings	all 100-pound sacks at	120 per M	100 000 sacks
Bran	all 100-pound sacks at	98 per M	125 000 sacks

Freights to the port at 70 cents per barrel, on flour and \$3 per ton on feed.

The mill record shows production:

Wheat Ground	1 000 000 bushels	
Patent Flour	150 000 barrels	
Clear Flour	50 000 barrels	
Middlings	3 750 tons	
Bran	5 000 tons	
Screenings	1 500 tons	
Milling Expense		\$90 000

The appurtenant elevator shows an expense account of \$41,500, which is divided in the proportions of 3 cents per bushel for wheat stored and 1 cent per bushel for transfer to mill.

There is no opening inventory to consider, but the closing market prices are:

Wheat	f.o.b. Centerburg elevator siding	\$1.40
Clear Flour	f.o.b. port, \$ 5.50 per barrel	sacked
Middlings	f.o.b. port, \$21.00 per ton	sacked
Bran	f.o.b. port, \$11.00 per ton	sacked

All wheat is 60 pounds per bushel.

Flour is 196 pounds per barrel.

The grind is at an average of 5 bushels per barrel and the flour produced is 75 per cent Patent and 25 per cent clear.

Loss in grinding is about one-half of 1 per cent.

The company has unfilled sales orders for 31,000 barrels Patent flour at an average price of $9.50, f.o.b. port, sacked, subject to usual brokerage.

(*a*) Set up closing inventory from data given.

(*b*) Prepare trading and manufacturing statement.

(*c*) Prepare statement showing profit or loss in futures. (*District of Columbia, June*, 1924.)

PROBLEMS FOR CHAPTER VI

ANALYTIC NON-BY-PRODUCT INDUSTRIES

1. The ledger balances of the Alpha Brewing Company at the end of the year 1905 appear as follows:

Capital Stock			$350 000.00
Treasury Stock		$30 000.00	
Bonds			25 000.00
Real Estate		36 782.10	
Buildings		103 285.25	
Machinery		57 463.41	
Horses		7 585.00	
Wagons and Harnesses		5 210.08	
Stationary Cooperage		23 409.87	
Floating Cooperage		12 705.28	
Signs		7 648.93	
Saloon Fixtures		15 784.25	
Office Furniture		1 285.10	
Bills Receivable		24 710.85	
Accounts Receivable		38 983.42	
Cash		60 562.07	
Accounts Payable			6 575.89
Inventory, January 1, 1905, Beer, Malt, Hops, Grits, and Supplies		25 810.92	
Reserve for Depreciation:			
Machinery	$6 210.85		
Floating Cooperage	2 382.72		
Stationary Cooperage	1 008.10		
Signs	3 710.25		
Saloon Fixtures	5 282.84		
Office Furniture	285.75		
Horses	2 408.09		
Wagons and Harnesses	1 224.82		22 513.42

Purchases in 1905, Malt, Hops, Grits, Etc.	$ 82 510.75	
Fuel	4 805.92	
Water	1 304.28	
Lighting Expense	582.29	
Brewery Labor	24 285.92	
Brewmaster	4 000.00	
Revenue Stamps	85 725.00	
Beer Sales		$342 423.50
Discounts on Sales	86 582.19	
Building Repairs	1 242.85	
Saloon Expense	1 187 10	
Machinery Repairs	1 572.25	
Salaries, Officers, and Clerks	6 210.83	
Drivers' Spending Money	5 708.25	
Stable Labor	11 642.82	
Stable Expense and Feed	5 242.10	
Interest on Bonds	750.00	
Wagon and Harness Repairs	782.19	
Charity	647.33	
Advertising	1 528 19	
Discount on Purchases		764.85
Interest Received		6 210.82
Insurance on Plant	2 583.41	
Taxes on Plant	2 237.88	
Office Expense	385.75	
General Expense	1 322.18	
Undivided Profits, January 1, 1905		30 577.53
	$784 066.01	$784 066.01

The Inventory, December 31, 1905, is:

Beer, Malt, Hops, Grits, and Supplies	$42 708.23
Unexpired Insurance	810.25
Fuel	385.25
Taxes Prepaid	575.25
Feed	185.00
Revenue Stamps	1 825.00

Provide the following depreciations, calculated on diminishing values: machinery, 5 per cent; floating cooperage, 10 per cent; saloon fixtures, 15 per cent; horses, 20 per cent; stationary cooperage, 5 per cent; signs, 20 per cent; office furniture, 5 per cent; wagons and harness, 10 per cent.

Charge off $1,282.19 for bad debts.

Close the books. Prepare trading and profit and loss statement and final balance sheet. (*Illinois, December*, 1907.)

2. The following is a list of the accounts appearing in the trial balance of the Mutual Brewing Company, Milwaukee, on December 31, 1916. From this list and the supplementary data, prepare, without using figures, the form of the revenue statement:

1. Cash at Bank and on Hand
2. Brewery Real Estate
3. Brewery Buildings
4. Saloon Real Estate
5. Saloon Buildings
6. Power Plant, Brewing Equipment, and Refrigerating Plant
7. Notes Receivable
8. Office Building
9. Furniture and Fixtures
10. "Annex" Building
11. Cost of "White" Lots
12. Auto Delivery Trucks
13. Advertising Automobile
14. Advertising Equipment
15. Customers' Accounts
16. Sundry Equipment
17. Fermenting Cooperage
18. Delivery Cooperage
19. Permanent Saloon Refrigerators
20. Portable Refrigerators
21. Bar Furniture and Fixtures
22. Bottles and Cases
23. Beer Pumps and Fittings
24. Inventories, January 1, 1916:
    Beer in Vats—Keg Beer
    Beer in Vats—Case Beer
    Case Beer
25. Deferred Charges
26. First Mortgage Bonds (on Saloon Properties)
27. Notes Payable
28. Sundry Trade Creditors
29. Reserve for Depreciation (Separate Account for Each Appropriate Fixed Asset)
30. Reserve for Bad Debts
31. Capital Stock (Issued and Outstanding)
32. Surplus
33. Brewery Licenses
34. Bad Debts
35. Brewery Supplies
36. Bottling Department Supplies
37. Bonus Paid on Purchase of Saloon Licenses
38. Breakage, Bottles and Cases in Transit
39. Breakage in Bottling Department
40. Case Beer Purchased
41. Collecting Rents, Saloon Properties
42. Customers' Retaining Expense
43. Depreciation of Appropriate Fixed Assets
44. Donations
45. Federal Income Tax
46. Insurance and Taxes—Bottling Department
47. Interest Received
48. Interest Paid
49. Incidental Expense
50. Labor, Bottling
51. Labor, Unloading and Loading Bottles and Cases
52. Labor, Shipping and Delivery
53. Lost Kegs
54. Lost Cases and Bottles
55. Law Expense
56. Maintenance of Saloon Buildings Not Owned
57. Maintenance of Appropriate Fixed Assets
58. Office Salaries
59. Office Supplies and Expense
60. Power and Heat, Bottling Department
61. Postage, Telegraph, and Telephone
62. Profits on Sale of "White" Lots
63. Rents Earned—"Annex" Building
64. Rents Earned—Saloon Properties
65. Revenue Stamps Used
66. Sales—Brewers' Grains
67. Sale of "White" Lots
68. Taxes on Appropriate Fixed Assets
69. Transfer Account, Case Beer to Keg Beer
70. Washing Bottles
71. Water and Light—Bottling Department
72. Water and Light—Saloon Properties

On the books the following accounts are each divided into two sub-accounts, one for Keg Beer, the second for Case Beer:

Advertising	Labor, Brewing
Allowance to Customers	Malt and Hops
Agency Expense	Maintenance Accounts for each appropriate fixed asset
Brewmaster's Salary	Operating Expense, Auto Trucks
Brewery Sundry Materials	Out Carriage
Bar Expense (City)	Power and Heat, Brewery
Depreciation Accounts for each appropriate fixed asset	Return Carriage
Delivery Cooperage Expense	Sales
Fermenting Cooperage, Maintenance, and Depreciation	Sundry Selling Expense
Insurance and Taxes, all appropriate asset accounts	Taxes on Finished Goods
Incidental Manufacturing Expense	Taxes on Saloon Fixtures
	Traveling Expense
	Water and Light, Brewing Department

Inventories, December 31, 1916: keg beer in vats; case beer in vats; case beer.

With these exceptions, all other inventories representing materials, supplies, fuel, revenue stamps, etc., at beginning and end of year have been allowed for in the trial balance.

The revenue-stamp charge per barrel lies against all beer withdrawn from storage vats and before bottling or other disposition.

You are to allow for the usual credit to Reserve for Bad Debts, and for crediting Interest on Investment account with interest on saloon properties and interest on annex building.

Annex building is supplied with heat from brewery power plant. *(Wisconsin, April,* 1917.)

3. The Mutual Distilling Company was organized on June 1, 1916, for the purpose of manufacturing alcohol from molasses. It started operations on July 1, 1916, and on December 31, 1916, the trial balance of the general ledger was as follows:

Real Estate	$ 10 000.00	
Buildings	97 000.00	
Machinery and Equipment	145 000.00	
Capital Stock		$250 000.00
Cash	5 700.00	
Accounts Receivable	81 500.00	
Bills Payable		105 000.00
Accounts Payable		15 183.00
Alcohol Sales		164 126.50
Freight (Outbound)	20 244.50	
Returns and Allowances	2 875.00	
Molasses	89 124.00	
Repairs and Replacements	1 806.50	
Cooperage	32 186.00	
Superintendence	1 700.00	
Factory Labor	6 766.00	
Fuel and Engine Room Supplies	5 964.00	
Factory Supplies	5 742.50	
Brokerage and Commission	4 669.00	
Traveling Expenses	1 032.00	
Other Selling Expenses	500.00	
Salaries of Officers	6 000.00	
Salaries of Clerks	1 800.00	
Stationery and Printing	350.00	
Insurance	5 500.00	
Taxes	1 000.00	
Incidental Expenses	2 850.00	
Interest and Discount	5 000.00	
	$534 309.50	$534 309.50

During the six months the company produced 1,237,021 proof gallons of alcohol; 812,390 proof gallons were sold, and 424,631 proof gallons remain on hand, valued at $44,453; 1,782,000 gallons of molasses were purchased; 1,682,000 were used; and 100,000 gallons remain on hand, valued at $6,670.

Inventory of material and supplies as follows: cooperage, $5,000; fuel, $500; factory supplies, $500; prepaid insurance, $1,500; and unearned interest, $700.

A dividend of 5 per cent on the capital stock was declared, payable in January, 1917; all accounts receivable are considered good.

From the above figures prepare: (*a*) closing entries; (*b*) Manufacturing and Trading account (from inventory of manufactured product and raw materials); (*c*) Profit and Loss account; in making the closing entries make the necessary reserves for depreciation on buildings and machinery and equipment at such rates as you think proper; (*d*) trial balance sheet. (*Louisiana*, 1917.)

PROBLEMS FOR CHAPTER VII

COMMERCIAL BANKS

1. The Home Savings Bank and the Wayne County Savings Bank agree to consolidate, with a capital stock of $2,000,000. To facilitate the merger, the former agrees to sell and does sell its remaining $100 shares of authorized capital of $1,000,000 at $320, and charges off furniture and fixtures. The banking houses of both institutions are reappraised and the value adjusted on the new books at $483,690 combined. The Wayne County Bank declares and pays a 20 per cent dividend, payable to stockholders of date. The accrued interest and expenses of each institution are not considered, except as they may have been reserved for. Show the result of the merger in statement form; the resultant book value of the shares of the combination; and the necessary journal entries to effect the closing of the old books and the opening of the new, all effective April 4, 1913.

Following is the condition of each, April 4, 1913:

WAYNE COUNTY SAVINGS BANK

Resources		Liabilities	
Loans and Discounts	$ 4 125 487.49	Capital Stock Paid In	$ 1 000 000.00
Bonds, Mortgages, and Securities	9 855 885.10	Surplus Fund	1 000 000.00
Banking House	125 000.00	Undivided Profits —Net	541 008.49
Reserve		Savings Deposits (Book Accounts)	13 308 920.17
U. S. Bonds	1 754 471.00	Savings Certificates of Deposit	708 144.24
Due from Banks in Reserve Cities	30 451.00	Reserve for Taxes, Interest, Etc.	29 398.95
U. S. and National Bank Currency	339 284.00		
Gold Coin	334 600.00		
Silver Coin	5 215.95		
Nickels and Cents	17 072.31		
Checks and Other Cash Items	5.00		
	$16 587 471.85		$16 587 471.85

HOME SAVINGS BANK

Resources	
Loans and Discounts:	
Commercial Department	$ 3 255 014.52
Savings Department	2 938 090 06
Bonds, Mortgages, and Securities	4 986 142.82
Overdrafts	131.03
Banking Houses	356 657.00
Furniture and Fixtures	10 320.96
Other Real Estate	1 834.56
Items in Transit	10 841.21
Reserve	
Commercial:	
Due from Banks in Reserve Cities	486 627.29
Exchanges for Clearing House	128 015.02
U. S. and National Bank Currency	212 730.00
Silver Coin	17 643.00
Nickels and Cents	163.16
Savings:	
Due from Banks in Reserve Cities	956 623.79
U. S. and National Bank Currency	278 868.00
Gold Coin	200 020.00
Checks and Other Cash Items	616.81
	$13 840 339 23

Liabilities	
Capital Stock Paid In	$ 996 400.00
Surplus Fund	996 400.00
Undivided Profits —Net	103 931.53
Commercial Deposits Subject to Check	2 225 028.46
Commercial Certificates of Deposit	36 898.95
Certified Checks	19 916.17
Cashier's Checks Outstanding	22 252.97
Due to Banks and Bankers	79 766.48
Savings Deposits (Book Accounts)	9 113 276.86
Savings Certificates of Deposit	246 467.81
	$13 840 339.23

(*Michigan, June*, 1913.)

2. At the close of business on February 29, 1916, you are required to make an examination of the Mukilteo State Bank. Prepare a balance sheet and a statement of income and profit and loss for the period since the books were closed, from the trial balance obtained by you from the general ledger of the bank, as follows:

Loans and Discounts	$422 881.18	
Overdrafts	7 446.84	
Stocks, Bonds, and Warrants	34 256.38	
Premiums on Bonds	397.82	
Furniture and Fixtures	3 000.00	
General Expenses	1 445.32	
Salaries	3 245.00	
Rent	1 800.00	
Interest Paid	2 418.12	
Railroad National Bank, Seattle	85 891.68	
Edmonds National Bank	4 928.40	
Second National Bank, Kirkland	10 430.81	
Coppersmiths' National Bank, New York	20 814.82	
Ocean National Bank, New York	13 003.06	
Lake Erie National Bank, Chicago	17 056.68	
Wimbago Trust Company, St. Louis	13 760.26	
Nineteenth National Bank, Los Angeles	32 624.55	
Willamette National Bank, Portland	43 279.47	
Remittance Account	1 617.18	
Exchanges for Clearing House	15 225.32	
Cash on Hand	75 608.33	
Over and Short	5.43	
Capital Stock		$ 50 000.00
Surplus		35 000.00
Undivided Profits		9 806.98
Safe Deposit Vault Rentals		135.00
Exchange		756.05
Interest and Discount		10 186.45
Individual Deposits		420 047.31
Bank Deposits		68 964.76
Demand Certificate of Deposit		1 153.31
Cashier's Checks		806.50
Certified Checks		600.12
Savings Deposits		57 405.31
Time Certificates of Deposit		156 155.66
Reserve for Taxes		119.20
	$811 136.65	$811 136 65

(*Washington, May*, 1916.)

3. The following items represent the combined statement of all the national banks. Rearrange them in the form of a balance sheet. You need not follow the form used by the Comptroller of the Currency, but make a balance sheet in the form that seems the most desirable.

Banking House, Furniture and Fixtures	$ 160 800
Bills of Other National Banks	31 200
Bills Payable	44 700
Bonds Borrowed	60 000
Bonds, Securities, Etc.	700 300
Capital Stock Paid In	896 400
Cashier's Checks Outstanding	1 000
Certified Checks	1 000
Checks and Other Cash Items	26 900
Circulating Notes	551 900
Demand Certificates of Deposit	1 000
Deposits of U. S. Disbursing Officers	17 800
Dividends Unpaid	1 600
Due from Approved Reserve Agents	614 500
Due from Other National Banks	334 600
Due from State Banks	123 000
Due from the Treasurer of the U. S.	4 700
Due to Approved Reserve Agents	38 100
Due to Other National Banks	823 000
Due to State Banks	395 800
Due to Trust Companies	337 900
Exchanges for the Clearing House	190 600
Fractional Currency	2 300
Individual Deposits Subject to Check	4 315 000
Lawful Money Reserve in Banks	701 600
Loans and Discounts	4 678 600
Notes and Bills Rediscounted	14 400
Bonds (other than U. S.) to Secure U. S. Deposits	68 200
Other Liabilities	6 900
Real Estate Owned Other than Banking House	20 200
Overdrafts	30 500
Premium on Bonds for Circulation	14 600
Redemption Fund with the U. S. Treasurer	27 300
Reserve for Taxes	4 400
State Bank Circulation Outstanding	100
Surplus Fund	548 300
Time Certificates of Deposit	1 000
Undivided Profits	186 600
U. S. Bonds on Hand	7 400
U. S. Bonds to Secure Circulation	557 300
U. S. Bonds to Secure U. S. Deposits	95 600
U. S. Deposits	143 300

(*American Institute of Accountants, June*, 1917.)

4. From the following statement of facts set up the trial balance of the Broad Exchange Bank, December 31, 1918, after closing, and prepare therefrom a condensed statement of condition as of the same date.

Due from banks, $74,975; time certificates of deposit, $10,000; cashier's checks, $496,349.75; rediscounts, $400,000; customers' loans, $500,000; bills purchased, $550,000; exchanges for clearing house, $320,000; due to

banks, $834,000; certified checks, $12,500; cash, $956,750; demand certificates of deposit, $2,500; transit department, $100,000; on deposit with the Federal Reserve Bank, New York, $48,500; demand loans, $125,000; time loans, $80,000; bonds and mortgages owned, $100,000; coupon deposits, $3,750; on deposit with National City Bank, $53,062.50; depositors, $765,910; banking house, $200,000; furniture and fixtures, $25,000; capital stock issued and outstanding, $500,000; securities owned, $96,812.50; surplus, $201,090.25; accrued interest receivable, $1,075; interest purchased, $125; unearned discount, $5,200. (*American Institute of Accountants, May, 1919.*)

5. An agreement has been reached whereby the Central National Bank is to absorb the East End National Bank. The former is to assume all of the liabilities of the latter and is to take over all the latter's assets, except the banking house and fixtures (which are to be conveyed to a trustee for sale and distribution of the proceeds among the East End stockholders) and such loans and discounts as prove, upon investigation, to be worthless. After these matters have been adjusted, if the book value of the East End stock be greater than that of the Central, the holders of the former are to receive the difference in cash; or if it be less, they are to pay the difference. The conditions of the two banks, as disclosed by their statements, are as follows:

	Central National Bank	East End National Bank
RESOURCES		
Loans and Discounts	$11 736 612.78	$1 518 727.99
U. S. Bonds to Secure Circulation	2 000 000.00	250 000.00
Bonds and Other Securities Owned	857 852.93	370 244.25
Banking House and Fixtures	60 000.00	40 500.00
Due from Banks and Bankers	1 962 056.25	281 933.18
Due from Approved Reserve Agents	1 996 618.96	199 179.10
Checks and Other Cash Items	95 652.28	24 247.54
Exchanges for Clearing House	641 115 67	83 411.83
Notes of Other National Banks	91 540.00	2 850.00
Fractional Currency, Etc.	5 011.93	1 974.76
Lawful Money Reserve in Bank	1 413 023.00	411 218.00
Redemption Fund with U. S. Treasurer	100 000.00	12 500.00
	$20 959 483.80	$3 196 786.65
LIABILITIES		
Capital Stock Paid in	$ 2 000 000.00	$ 200 000.00
Surplus	1 500 000.00	175 000.00
Undivided Profits	494 400.00	77 148.23
Unearned Discount	129 671.56	10 495.55
Circulation	1 796 700.00	247 400.00
Due to Banks and Bankers	4 408 270.38	472 646.47
Cashier's Checks	142 978.16	15 585.56
Certified Checks	359 105.40	46 226.71
Certificates of Deposit	1 147 639.95	402 472.45
Individual Deposits	8 980 718.35	1 549 811.68
	$20 959 483.80	$3 196 786.65

Show the book value of Central stock.

Show the book value of East End stock, after eliminating the banking house and fixtures and after charging off the worthless paper, which amounts to $11,648.23.

Show the amount per share to be received or paid by the East End stockholders to equalize the book values.

Show the condition of the Central after the consolidation has been effected. (*Virginia, October*, 1913.)

6. The stockholders of the Merchants Bank and the Farmers Bank agree to consolidate the two institutions under the name of the Merchants and Farmers Bank. You are employed to make a simultaneous examination of these banks; also, to open the books of the new institution after the consolidation has been effected. Statements taken from the general ledgers of the banks to be consolidated, as of October 1, 1916, show as follows:

MERCHANTS' BANK:

Capital Stock, Par Value, $100 per Share		$ 60 000.00
Surplus		28 000.00
Individual Deposits		157 294.95
Certificates of Deposit		136 113.78
Discount and Interest		8 412.77
Exchange		1 344.58
Cashier's Checks		1 688.24
Undivided Profits		12 881.36
Dividends Unpaid		60.00
Certified Checks		430.49
Loans and Discounts	$257 332.16	
Furniture and Fixtures	4 887.45	
Expenses	3 151.63	
Interest	3 362.13	
Taxes	900.00	
Stocks and Bonds	40 000.00	
Cash and Cash Items	30 130.38	
Due from National Banks	28 475.88	
Due from State Banks	22 428.21	
Banking House	15 558.33	
	$406 226.17	$406 226.17

FARMERS' BANK:

Capital Stock, Par Value, $100 per Share		$ 25 000.00
Surplus		5 500.00
Undivided Profits		5 122.32
Individual Deposits		70 330.73
Certificates of Deposit		45 134.15
Discount and Interest		3 232.24
Exchange		189.31
Certified Checks		120 00
Cashier's Checks		511.50
Loans and Discounts	$ 79 449.05	
Furniture and Fixtures	2 713.61	
Due from National Banks	22 810.90	
Due from State Banks	7 088.42	
Stocks and Bonds	30 000.00	
Cash and Cash Items	10 568.89	
Expenses	1 247.16	
Interest	892.22	
Taxes	370.00	
	$155 140.25	$155 140.25

MERCHANTS' BANK:

Overdrafts, $1,334.32, of which the sum of $67.17 is considered worthless. In reconciling the account with the Twin City Bank, you find that they are debited with an item of $5,000, of which they have no record and which the cashier, who is bonded for $10,000, cannot explain. You also find in reconciling the accounts with national banks that the cashier has failed to credit them with discounts and exchanges amounting to $116.20.

Unearned Discount	$ 1 472.01
Interest Accrued on Deposit	3 863.04
Taxes Accrued	278.44
Interest Accrued on Stocks and Bonds	600.00
The Stocks and Bonds Are Appraised at	36 000.00
The Loans and Discounts Are Appraised at	265 191.52
Furniture and Fixtures Are Appraised at	3 000.00
Remittance Letters in Transit to National Banks	4 692.75
Remittance Letters in Transit to State Banks	2 814.36

FARMERS' BANK:

Overdrafts, $154.41, of which the sum of $17.21 is considered worthless.

Unearned Discount	$ 540.08
Interest Accrued on Stocks and Bonds	360.00
Interest Accrued on Certificates	634.16
Taxes Accrued	97.21
Furniture and Fixtures Appraised at	2 000.00
Loans and Discounts Appraised at	78 556.83
Stocks and Bonds Appraised at	27 500.00
Remittance Letters in Transit to National Banks	2 196.42
Remittance Letters in Transit to State Banks	1 749.81

A cash dividend sufficient to make the value of the stock in the Merchants Bank equal to that in the Farmers Bank is declared payable to stockholders. Stock in the consolidated institution of the par value of $15,000 is sold at $125 per share for cash.

Draft journal entries and show statement of condition of each bank before consolidation and statement of condition of the Merchants' and Farmers' Bank after consolidation has been perfected. Also, state what verification you would make of the various items representing the resources and liabilities. (*Virginia, October*, 1916.)

PROBLEMS FOR CHAPTER VIII

SAVINGS BANKS AND TRUST COMPANIES

1. The auditing committee of the Washington Savings Bank (Massachusetts) called upon a certified public accountant to prepare a statement as at the close of business on May 28, 1912, of the estimated net earnings of the six months ending May 31, 1912, applicable to a dividend on June 1, 1912.

The deposits amounted to $10,400,000, and the guaranty fund to $442,000. The Interest account showed a credit balance of $248,000, made up as follows: received from real estate loans, $124,000; received from personal loans, $12,000; received from investments, $108,000; arrears, uncollected, credited to Interest and simultaneously charged to Profit and Loss, $4,000.

The expenses were $13,600, and the state tax (net), $11,440. The balance of the Profit and Loss account on November 30, 1911, was $96,000, of which $2,400 was undivided earnings of the six months ended that date. Subsequent charges to this account were: premiums on securities purchased, $880; loss from book value of securities sold, $664; loss from book value of foreclosed property sold, $1,000. The arrears of interest mentioned above, $4,000.

A dividend of $240 received in liquidation of bank stock previously written off had been credited to Profit and Loss.

The following are his estimates for the remaining days of the period: net increase in deposits, $48,000; interest receipts, $5,600; expense, $2,400.

Assuming the correctness of the accountant's estimates, prepare such a statement, setting apart as a guaranty fund the minimum amount sanctioned by law. (*Massachusetts, June,* 1913.)

2. The Standard Trust Company is appointed by the Peninsular Mining Company as trustee of a bond issue, aggregating $1,000,000, all bonds of $1,000 denomination, rate 5 per cent and bearing the date January 1, 1914. Bonds mature in ten equal annual instalments, beginning January 1, 1917, unless previously converted or retired.

The issue is not purchased by the trustee, but is sold through Emory Davis and Company, brokers, the company realizing 90 per cent and accrued interest, less cost of appraisal of property, printing, trustees' expenses, etc., amounting to $9,310.80.

The entire issue was taken over, and paid for by the brokers on January 20, 1914.

Among the other things the trust deed provides:

Bonds convertible on any interest date for 6 per cent preferred stock at 90 per cent, at option of holder.

Bonds may be retired out of surplus on any interest date at 103, at option of company.

Sinking fund for payment of principal only to be based on production of ore at 10 cents per ton.

Trustee to charge ¼ per cent of principal on issue, and ¼ per cent on coupons.

Interest payable January 1 and July 1.

The company's production for three years is assumed to be, for the purpose of this problem, 1,000,000 tons per year.

January 1, 1916—$100,000 are converted to preferred stock.

January 1, 1917—$200,000 are redeemed at 103.

Formulate all necessary entries for books of: (*a*) Standard Trust Company, (*b*) Peninsular Mining Company, (*c*) Emory Davis and Company, which may be occasioned by the above incidents to and including January 1, 1917. (*Michigan, June,* 1914.)

PROBLEMS FOR CHAPTER IX

BROKERS

1. The following is a trial balance of a firm of stock brokers doing business under the name of Adams and Jones:

Customers	$10 500 000	
Customers		$ 250 000
Cash	150 000	
Loans		9 500 000
Borrowed on Loan Account		110 000
Investments	580 000	
Furniture and Fixtures	3 600	
Interest		33 400
Commission Account		190 600
Expenses	34 400	
Adams		650 000
Jones		534 000
	$11 268 000	$11 268 000

Stocks Borrowed	$ 370 000
Stocks Loaned	480 000
Commissions Due Other Brokers	1 500
Interest Accrued on Loans	3 040
Stocks Pledged to Secure Loans	11 400 000
Stocks in Transfer	130 000
Stocks Loaned to Other Brokers	486 000
Stocks on Hand	384 000

Prepare, in technical accounting form, a financial statement of the firm. (*New York, June,* 1915.)

2. A stock brokerage firm composed of three partners, A, B, and C, agreed to dissolve December 31, 1910.

The original investments contributed January 2, 1910, were as follows: A, cash $100,000; B, cash $150,000; C, $40,000. C's Capital account was credited with $80,000 and his seat in the Stock Exchange held by the firm as collateral for the same.

The partnership agreement recites the following facts: A is allowed to withdraw $10,000 and charge same to expense; B is allowed to withdraw $15,000 and charge same to expense; C is allowed to withdraw $20,000 and charge same to expense.

Interest on partners' capital 5 per cent per annum on original amount, profits or losses to be shared equally.

The interim transactions during the year as transcribed from the blotter were:

Purchases of 1,000 bonds par value $1,000 each for $1,005,000 maturing January 2, 1920.

Purchases of stocks for customers, long, 50,000 shares (par value $100) for $4,750,000.

Sales of stocks for customers, short, 50,000 shares (par value $100) for $4,625,000.

Margin received in cash from customers, long, $500,000.

Margin received in cash from customers, short, $500,000.

The following loans were made from banks on securities:

On bonds $750,000; interest paid in full to December 31, 1910, $32,500.

On stocks $150,000; interest paid in full to December 31, 1910, $6,000.

To complete transactions for account of customers all stocks were either borrowed or loaned.

The earnings comprised commissions, $175,000, received in full; and interest receivable, $85,000, of which $70,000 was collected.

The expenses were $62,500 (exclusive of partners' allowances or interest paid on capital), of which $2,500 remained unpaid at time of dissolution.

The partners had withdrawn as follows: A, $16,500; B, $18,750; C, $18,500. The market value of the bonds was $1,004,500. The stock exchange seat was finally sold to B for $85,000, the profit therefrom reverting to the firm.

Prepare statements, prior to dissolution, showing (*a*) cash receipts and disbursements and balance on deposit in bank, (*b*) income and expenditures, (*c*) condition at time of dissolution, (*d*) partners' respective Capital accounts. (*New York, June,* 1911; *New York, January,* 1920.)

3. You are called upon to audit the accounts of Roland Stone and Company, stock brokers, Chicago, as of January 11, 1908.

Statement A, January 1 to 11, 1908

ROLAND STONE AND COMPANY, Chicago
in account with HENRY HUDSON AND COMPANY, New York

Dr.	Bought				Sold		Cr.
1908				1008			
Jan. 1	Balance—long		$65 782.25	Jan. 1	Balance—short		$15 900.00
	200 Atchison Common				100 Pressed Car	2 200	
	100 Wabash				100 Northwestern	13 700	
	00 Reading			2	100 Atchison Common	71¾	7 168.75
	200 Steel Common				100 Steel Common	26	2 593.75
2	100 Amalgamated	47⅞	4 793.75	3	100 Union Pacific	125	12 493 75
8	100 Wabash	10	1 006.25	4	Check on Chemical National		15 000.00
	100 Pressed Car	22	2 205.25		100 Steel Common	26¼	2 025.00
4	10 B. & O.	Rec'd			50 Reading	Del'd	
	50 Anaconda	Rec'd		6	100 Amalgamated	48	4 793 75
0	200 Northwestern	137	27 412 50	7	150 Wabash	10	1 400.02
7	20 Louisville and Nash-						
	ville	90	1 801 25		50 Wabash	Del'd	
8	10 Southern Pacific	72½	725 63	8	100 Louisville and		
9	50 Steel Preferred	87¾	4 390.63		Nashville	91	9 093.75
10	40 Steel Preferred	88	3 522 50	10	100 Steel Preferred	90	8 093.75
11	100 Wabash	11	1 106 25	11	Dividend Southern Pacific		10.00
	cy to Mr. Stone		200.00				
	Express on Bonds to Boston		1.50				
	Balance down—Short				Balance down—long		
11	Balance—long				Balance—short		

Statement B, January 1 to 11, 1908

HENRY HUDSON AND COMPANY, New York
in account with ROLAND STONE AND COMPANY, Chicago

Dr.	Bought				Sold		Cr.
1908				1908			
Jan. 1				Jan. 1	Balance—Short	$ 65 782.25	
	100 Pressed Car	?			Long	15 900.00	$ 40 882.25
	Northwestern	?			200 Steel Common		
	100 Atchison Common	71¾	$ 7 168.75		200 Atchison Common		
2	100 Union Pacific	125	12 493.75		100 Wabash		
	Draft Chemical National		15 000.00		50 Reading		
8	50 Reading	Rec'd		3	100 Amalgamated	47⅞	4 703.75
	100 Amalgamated	48½	4 843.75	4	100 Wabash	10	1 000.25
0	150 Wabash	10	1 490.63		100 Pressed Car	22	2 205.25
7	50 Wabash	Rec'd			10 B. & O.	Del'd	
	100 Steel Common	26	2 593.75	0	50 Anaconda	Del'd	
	100 Steel Common	26¾	2 668.75		200 Northwestern	137	27 412.50
8	100 Northwestern	137	13 693.75	7	20 Louisville and Nash-		
0	100 Union Pacific	125	12 493.75		ville	90	1 800.00
10	100 Louisville and Nash-			8	10 Southern Pacific	72½	725.52
	ville	91	9 093.75	10	Dividend American Biscuit		150.00
11	100 Steel Preferred	90	8 993.75	11	cy from Junes, Hooper & Co.		500.00
	100 Missouri Pacific	45	4 493.75		400 Missouri Pacific	45	18 425.00
	Balance down		11 873.40				
			$100 901.62				$100 901.62
				Jan. 11	Balance		$11 873.49

Statement A is account current rendered by Henry Hudson and Company, the New York correspondents of Roland Stone and Company.

Statement B is account current made up from Stone's books.

Bring down long and short currency balances on statement A and establish net balance.

Also show balance of stocks open, both long and short.

Bring down stock balances on statement B, both long and short. (*Illinois, May*, 1908.)

4. A, B, and C form a copartnership to engage in buying and selling stocks on commission. A is a special partner and B and C are active partners. A and C each contribute \$100,000 cash capital and B, who owns a seat on the Stock Exchange, turns it in at an agreed value of \$75,000, together with \$25,000 additional cash capital. A is to receive interest on his capital at 6 per cent and one-sixth of the net profits. B and C are each to receive five-twelfths of the net profits.

At the end of the first year it was found that:

(*a*) Securities which had been purchased for account of customers long for \$2,639,675, including brokers' commissions and interest, were worth, according to closing quotations December 31, \$2,527,360. Cash margin had been advanced \$350,000.

(*b*) Customers short had received a net credit of \$595,290 for securities sold for their account, on which they had paid margins of \$65,000, which securities were worth at market prices December 31, \$585,000.

(*c*) New York City 4 per cent bonds had been purchased for firm account at par for \$3,000,000, pledged with banks for a loan of \$2,700,000, and were found to be quoted at 101 on December 31.

(*d*) Market value of securities in the box was \$171,000 and loans due banks of \$720,000 represented 80 per cent of market value of securities pledged as security therefor.

(*e*) Cash amounting to \$1,500,000 had been received on account of securities loaned to other brokers which were of *sufficient value to account for full complement of securities at close of year.*

(*f*) Commissions earned were \$88,700; excess of interest earned over interest paid, exclusive of interest on A's capital, \$41,300; office salaries, \$7,800; office expense, rent, etc., \$75,000; partners' drawings: A, \$15,000; B, \$25,000; and C, \$25,000.

(*g*) \$475,500 had been paid for stock borrowed from other brokers.

Prepare Profit and Loss account for the year and balance sheet as of December 31. (*Massachusetts, October*, 1917.)

5. Broad, Beaver and Company, cotton-oil brokers (members of P. E. C. Association), trade in cotton-oil options for their own account.

The following transactions appear on their books for today's trading:

Purchases from Clearing House Brokers

			Per 100 Pounds
Carpenter, Bagot and Company	400 barrels	January Delivery Price	\$7.02
Morgan, Ryan and Company	600 barrels	March Delivery Price	7.21
Morgan, Ryan and Company	500 barrels	June Delivery Price	7.20
William Commission Company	500 barrels	July Delivery Price	6.90
William Commission Company	100 barrels	July Delivery Price	6.92

Sold to Clearing House Brokers

		[Per 100 Pounds]	
Carpenter, Bagot and Company	400 barrels	January Delivery Price	$7.03
Morgan, Ryan and Company	500 barrels	March Delivery Price	7.22
Morgan, Ryan and Company	700 barrels	June Delivery Price	7.19
William Commission Company	100 barrels	July Delivery Price	6.93

Clearing House Closing Prices

January	$7.02
March	7.22
June	7.20
July	6.93

NOTE:—Each barrel is considered as containing 400 pounds of oil. Show transaction in all the books and a Profit and Loss account, taking the inventory at closing prices. (*New York, February*, 1910.)

6. The following is the summary of a trial balance taken from the books of the Messrs. Broad, Street and Company (stock brokers) December 31, 1902:

Due from Customers	$5 250 000	
Due to Customers		$ 125 000
Cash	75 000	
Loans		4 750 000
Borrowed and Loaned Account		55 000
Investments	290 000	
Furniture and Fixtures	1 800	
Interest		16 700
Commissions		95 300
Expenses	17 200	
F. L. Broad		325 000
T. J. Street		267 000
	$5 634 000	$5 634 000

An analysis of the Borrowed and Loaned account showed borrowed $185,000 and stock $240,000. The firm owed commission bills amounting to $750, and the interest accrued on loans amounted to $1,520. The market value of the securities (not including stocks borrowed) calculated at closing prices December 31, 1902, was $6,200,000, of which $5,700,000 was pledged to secure loans, $65,000 was in transfer, $243,000 was loaned to other brokers, the remaining $192,000 being on hand.

Prepare *pro forma* balance sheet with Profit and Loss account, dividing profits or losses equally among the partners. (*New York, June*, 1903.)

PROBLEMS FOR CHAPTER X

BUILDING AND LOAN ASSOCIATIONS

1. The Bay Side Building and Loan Association, whose monthly dues were $1 per share, had three series of shares in force at the end of the third year; the number of shares in each series and the value per share were as follows: first series, 500 shares, value per share, $38.87; second series, 600 shares, value per share, $25.27; third series, 400 shares, value per share, $12.32.

A fourth series of 500 shares was issued at the end of the third year. The net profits for the fourth year were $3,000 and the total profits for the four years were $5,325.

Prepare a statement showing the value of a share at the end of the fourth year, in each series, and explain your method of procedure. (*New York, January*, 1914.)

2. A cooperative assessment association began writing policies in 1909 on the five-year plan, the members being entitled to participation in the surplus at the end of said period.

The following certificates of the class maturing in 1914 are in force:

Monthly Assessment	Certificates in Force
$0.50	10
1.00	360
2 00	1 515

The net amount to be distributed is $136,620.60. Prepare a statement showing the amount of dividend due each certificate. (*New York, January*, 1914.)

3. A building and loan association conducted on the partnership plan, requiring the stock to be paid for at the rate of 25 cents each week in advance and shares $100,000 par value, has at December 31, 1917, the following series in effect:

Age in Weeks	Number of Shares
6	1 000
52	1 500
134	5 000
201	2 500
253	2 000
324	1 000

The undivided profits amount to $62,012.25.

(*a*) What is the percentage rate per annum? (*b*) What is the book value of a share in each series? (*c*) How many weeks will it require to mature the stock? (*North Carolina, November*, 1918.)

4. A savings bank conducted what they called a "Christmas Club" with 500 members who paid in $1 each on the first of the week for 50 weeks. The bank returned to each member at the end of 50 weeks the amount paid in and interest computed at rate of 4 per cent. The bank earned gross 6 per cent on the amounts paid in and it cost 1 per cent to do business. What profits were made on the Club membership? (*North Carolina, November*, 1919.)

5. A building and loan association conducted on a mutual partnership plan and selling stock of the par value of $100 at the rate of 25 cents per week in advance and the association earning a profit at the rate of 6 per cent adopts a rule to pay stockholders withdrawing, in addition to their dues paid in, the accumulated profits less 10 per cent. What would be the withdrawal value of a share of stock 39 weeks old? (*North Carolina, November*, 1919.)

6. A building and loan association is formed with a membership of 60, each subscribing for five shares of par value $200 each. The subscriptions

are payable in monthly instalments of $1 for each share, and these receipts, together with interest received from loans, are loaned to various borrowing members of the association at the rate of 6 per cent per annum, payable monthly. Assuming that the association has expenses of $150 per annum, that the interest receivable is always received on time, that 5 per cent of the cash is always on hand, and that the profits are divided equally among the shares and credited to the shareholders' subscriptions annually, how long will it be before the shares mature? (*Pennsylvania, November*, 1917.)

7. A savings and loan association makes the following showing on July 1, 1910:

Assets		Liabilities	
Loans on Real Estate	$157 780	Payments on Stock	$ 90 875
Loans on Stock	4 572	Bonds Outstanding	31 200
Office Furniture	340	Bills Payable	4 000
Delinquent Dues	146	Incomplete Loans (Included	
Delinquent Interest	177	in Assets)	8 500
Cash	1 734	Profit and Loss	30 174
	$164 749		$164 749

Share Accounts

Series	No. Shares	Months Paid	Total Paid	Profits per Share	Total Profits
A	600	42	$25 200	$14	$8 400
B	987	25	24 675	8	7 896
C	1 500	18	27 000	6	9.000
D	1 000	14	14 000	4	4 000

The plan of the association is to receive $1 per month per share on all shares of stock, this making up the capital which is loaned to the members.

July 1, 1910, a new series E was issued and 650 shares subscribed. On the same date 60 shares of A, 127 shares of B, 250 shares of C, and 100 shares of D stock were withdrawn, the members forfeiting all right to profits because of withdrawal before maturity.

Besides the regular monthly dues, there was received during the six months ending December 31, 1910, $8,678.70 for interest on loans, $126.50 from transfer fees and fines, $77 from delinquent dues, $100 from delinquent interest, and old loans were paid amounting to $18,600.

$24,700 on new real estate loans were made and paid; the incomplete loans were paid in full; 7 per cent interest due on bonds and bills payable was paid, and $200 a month allowed and paid the secretary for salary and office expenses.

You are required to make a statement showing receipts and disbursements, the assets and liabilities, and the profits for the six months ending December 31, 1910. (*Washington, May*, 1911.)

8. A savings and loan association makes the following statement on June 30, 1907:

Assets		Liabilities	
Loans on Real Estate	$157 780	Payments on Shares of Stock	$ 90 875
Loans on Shares of Stock	4 572	Advance Payment on Series A Shares to December 31, 1907	900
Office Furniture and Fixtures	340	Bonds Outstanding	31 200
Delinquent Dues	146	Bills Payable	4 000
Delinquent Interest	177	Incomplete Loans (Included in Assets)	8 500
Cash	2 634	Interest Due on Bonds	878
		Profit and Loss	29 296
	$165 649		$165 649

Share Accounts

Series	No. of Shares	Months	Dues Paid per Share	Total	Profits per Share	Total	Value per Share	Total
A	600	84	$42	$26 100	$14	$8 400	$56	$34 500
B	987	50	25	24 675	8	7 896	33	32 571
C	1 500	36	18	27 000	6	9 000	24	36 000
D	1 000	28	14	14 000	4	4 000	18	18 000

The plan of the association is to receive monthly payments of 50 cents per month on each share of stock in force, this forming the capital of the association, which is loaned to its members. On July 1, 1907, a new series (E) was issued, of which 650 shares were subscribed.

July 1, 1917, there were withdrawn 60 shares A, 127 shares B, 250 shares C, and 100 shares D stock, which carried with them three-fourths of the profits shown on the last semi-annual statement, the other one-fourth going into the profits for the period.

Besides the regular dues, there was received during the six months $8,678.70 for interest on loans; transfer fees and fines, $126.50; delinquent dues, $77; delinquent interest, $103; and old loans were paid off amounting to $18,600.

There were issued by the association $10,000 new bonds, dated October 1, 1907, bearing interest like those outstanding, *viz.*, 6 per cent payable January 1, and July 1, each year.

$24,700 of new real estate loans were made and paid; the incomplete loans were paid in full; interest due on bonds and interest of 7 per cent paid on bills payable due June 30 but omitted from the statement; $200 a month allowed the secretary as salary and $360 for expenses for the period.

You are required to make statements showing the receipts and disbursements, and assets and liabilities and the profits for the six months ending December 31, 1907. (*Washington, March,* 1909.)

9. The following are statements of a building and loan association:

Cash in Bank	$ 1 138.98	
Interest Received		$ 6 255.77
Bills Payable		24 845.00
Fines		478.80
Stock Loans	9 106.15	
Entrance Fees		159 25
Withdrawal Fees		174 50
Interest Due on Bills Payable		187.01
Transfer Fees		1.50
Instalment in Arrears		1 246.00
Mortgage Loans	99 138.00	
Interest	1 694.40	
Interest Paid in Advance	126.00	
Advertising and Printing	78.82	
Salaries	650 00	
Mortgage Loans Incomplete		1 156.00
State Taxes Paid	84.13	
County Taxes Paid	229.54	
Unpaid Salaries		50.00
Postage and Revenue Stamps	13.30	
Insurance Premiums Advanced	420.50	
Instalment Paid as Due		74 268.75
Interest Due on Loans	302.77	
Instalments Paid in Advance		97.00
Unpaid Instalments	1 246.00	
Undivided Profits		7 900.97
Profits Withdrawn and Paid on Matured Stock	2 591.96	
	$116 820.55	$116 820.55

SHARES IN FORCE

Series	Shares	Age in weeks	Due to Be Paid In Per Share	Due to Be Paid In Per Series
7	51	330	$82.50	$ 4 207.50
8	82	304	76.00	6 232.00
9	18	287	71.75	1 291.50
10	58	269	67.25	3 900.50
11	54	252	63.00	3 402.00
12	64	230	57.50	3 680.00
13	164	213	53.25	8 733.00
14	211	195	48 75	10 286.25
15	150	169	42.25	6 337.50
16	286	143	35.75	10 224.50
17	180	117	29.25	5 265.00
18	258	91	22.75	5 869.50
19	195	65	16 25	3 168.75
20	215	39	9.75	2 096.25
21	263	13	3.25	854.75
	2 249			$75 549.00

From the above information prepare a balance sheet, profit and loss statement, and apportion all the profits upon the partnership profit-sharing plan. Also give the book value per share and the percentage of profit being earned. Take into consideration the discrepancy as shown by the above detail list of shares in force and the amount of instalments due to be paid in as per first statement given above. (*North Carolina, August,* 1917.)

PROBLEMS FOR CHAPTER XI

FIRE INSURANCE COMPANIES

1. At the close of the first year, after engaging in business, the ledger balances of an Illinois fire insurance company may be assumed to be correctly stated as follows:

Losses Adjusted and Paid	$ 16 785.90	
Losses Adjusted, Not Paid	5 210.85	
Premiums in Hands of Agents	7 892.54	
Capital		$200 000.00
Surplus		100 000.00
Premiums		97 500.00
Interest		8 942.50
Commissions	26 847.25	
Taxes	1 510.83	
Salaries	7 428.10	
General Expenses	16 582.72	
Investments and Loans	290 150.69	
Office Furniture	2 495.10	
Stationery and Supplies, Inventory	1 828.90	
Accounts Receivable	16 825.95	
Accounts Payable		3 180.75
Reserve for Losses Adjusted		5 210.85
Organization Expense	1 822.03	
Cash	19 453.24	
	$414 834.10	$414 834.10

The policy register shows:

	Policies Issued	Premiums Received
Expiring in 1 Year	$1 300 000	$15 000
Expiring in 2 Years	1 075 000	18 500
Expiring in 3 Years	1 450 000	34 500
Expiring in 5 Years	1 250 000	29 500
	$5 075 000	$97 500

The Illinois Statute reads.

"In estimating profits, there shall be reserved therefrom a sum equal to the whole of unearned premiums on unexpired risks and policies. . . . The Company may declare dividends not exceeding 10 per cent of its capital stock in any one year that shall have accumulated and be in possession of a fund, in addition to the amount of its capital stock and of such dividends

and all actual outstanding liabilities, equal to one-half of the amount of all premiums on risks not terminated at the time of making such dividend. A year is defined to mean a calendar year."

Determine the reserve required and state what sum, if any, is available for dividends without impairing the surplus shown in the ledger balances. Changes in relation to policies canceled or settled for under claims for losses may be ignored. (*Illinois, December*, 1907.)

2. BLANK FIRE INSURANCE COMPANY

Trial Balance, December 31, 1908

Stocks and Bonds (Book Value)	$3 000 000	
Mortgage Loans	1 000 000	
Real Estate	500 000	
Interest Receivable and Mortgage Loans	1 000	
Cash at Banks and on Hand	300 000	
Uncollected Premiums	500 000	
Capital Stock		$ 500 000
Unpaid Dividends		100 000
Surplus Account, January 1, 1908		2 000 000
Gross Premiums		3 000 000
Return Premiums	5 500	
Income from Stocks and Bonds		25 000
Interest on Mortgage Loans		10 000
Rents Received		200
Losses	210 000	
Reinsurance Premiums	10 000	
Commissions	5 000	
Taxes	4 000	
Salaries	40 000	
Uncollectible Premiums	3 000	
Rebates	200	
Real Estate Expenses	5 000	
Real Estate Losses	3 000	
Postage	500	
Legal Expenses	500	
Maps	15 000	
Underwriters' Boards and Tariff Associations	30 000	
Inspections and Surveys	2 000	
General Expenses	500	
	$5 635 200	$5 635 200

From the foregoing trial balance prepare a balance sheet at December 31, 1908, and the relative Income account for the year ending that date.

Describe what procedure you would adopt in verifying the assets and liabilities. Make any criticisms in respect of reserves apparently omitted. (*Pennsylvania, November*, 1909.)

3. A fire insurance company has the following risks and premiums outstanding on May 31, 1916:

Date of Expiration	Term, Years	Amount of Risk	Gross Premiums Charged Less Reinsurance
January, 1917	1	$ 954 648.00	$15 804.74
March, 1917	1	1 000 000.00	15 000.00
April, 1917	1	1 000 000.00	15 000.00
June, 1916	2	14 240.00	185.32
June, 1917	2	40 120.00	586.23
January, 1917	3	2 279 758.00	37 332.21
May, 1917	3	2 328 462.00	38 994.02
February, 1919	3	2 013 049.00	33 804.34
April, 1919	4	1 700.00	39.33
September, 1916	5	149 722.00	3 293.66
July, 1917	5	228 532.00	5 039.92
March, 1919	5	279 184.00	5 196.13
May, 1919	5	49 722.00	1 293.66
December, 1919	5	100 000.00	2 000.00
February, 1921	5	100 690.00	2 275.34

Calculate the unearned premiums as of May 31, 1916, according to the established rule, and make the journal entry necessary to decrease the reserve set up on the ledger $7,500. (*North Carolina, June,* 1916.)

4. A fire insurance company shows the following trial balance taken from its books December 31, 1914:

Guaranty Capital		$100 000.00
Cash	$ 16 781 67	
Premium Income		161 357.99
Accounts Receivable—Less Than Three Months Old	13 352.58	
Accounts Receivable—More Than Three Months Old	267.69	
Accounts Receivable—Credit Balances		188.70
Salaries	12 154.88	
Printing and Stationery	905.81	
Postage, Telephone, and Telegrams	1 109.96	
Furniture and Fixtures	1 272.48	
Bank Exchange	126.95	
Miscellaneous Expense	219.42	
Interest on Deposits		478.68
Advertising	990.37	
Legal Expense	178.72	
Rent	864.00	
Adjusting Losses	1 120.40	
Fire Losses	69 630.37	
Dividends on Guaranty Capital	7 000.00	
Dividends to Policyholders	32 692.88	
State Tax on Capital	250.98	
Reinsurance	17 406.95	
Profit and Loss Sundries	170.56	
Surplus		93 985.00

Investments	$173 431 24	
Interest on Investments		$ 7 088.48
Miscellaneous License and Taxes	530.67	
Reinsurance Accounts Payable		1 349.55
Notes Receivable (Premium)	56.00	
Home Office Employees' and Directors' Expense	822.97	
Commissions	2 500.85	
Collateral Loans	2 500.00	
Mortgage Loans	8 000.00	
Insurance Department License	110.00	
	$364 448 40	$364 448.40

December 31, 1913, there were outstanding items not on the books, as follows:

Unearned Premiums Applying to Subsequent Years	$64 827.30
Unsettled Losses Reported but Not Paid	1 054.20
Miscellaneous Accounts Payable	100.80
Accrued Interest on Investments	2 007.85

December 31, 1914, there were outstanding balances not on the books, as follows:

Unearned Premiums Applying to Subsequent Year	$75 495.96
Unsettled Losses Reported but Not Paid	6 217.79
Miscellaneous Expense Accounts Payable	28.78
Accrued Interest on Investments	2 550.97

Prepare a revenue and expense statement for the year 1914, and a balance sheet as of December 31, 1914. (*Massachusetts, October*, 1916.)

5. A fire insurance company began business with a capital of $400,000 and a surplus of $400,000 paid in cash. At the end of the year its books show the following:

Income.—Gross premiums $707,135.84 less reinsurance rebates and return premiums, $94,971.27; interest on mortgage loans, received in cash, $6,803.65, and the interest accrued and due, $1,349.87; interest on collateral loans, received in cash, $1,014.44, and accrued and due, $4,228.32; interest on bonds and dividends on stocks, received in cash, $16,841.65, and accrued and due, $186; profit on sale of assets, $4,204.52.

Outgo.—Gross amount paid for losses, $115,048.22, less salvages, $14,900; gross claims for losses in process of adjustment, $32,263.83; gross claims for losses resisted, $8,618.50, less due and accrued for reinsurance, $11,412.71; commissions or brokerage paid in cash, $123,544.19, and due or to become due, $9,519.24; salaries, fees, and all other charges of officers, clerks, and other employees paid, $24,755.68; rents paid, $4,224.93; taxes, licenses, insurance department fees paid, $9,764.99; and all other expenses paid, $20,820.12; due and accrued expenses, $621.29; due and accrued return premiums, $9,597.36; due and accrued reinsurance premiums, $6,856.48. The market value of securities owned was $20,625 less than their cost.

The risks in force at the end of the year carried premiums of $580,867.07, of which sum $424,747.65 was the aggregate premiums on risks running

one year or less, and \$156,119.42 was on risks running more than one year, the unearned premiums on which amounted to \$111,950.46.

Set up the income accounts, making due allowance for unearned premiums. (*New York, January*, 1904.)

6. The following is a trial balance of the books of a fire insurance company as at the close of business December 31, 1916:

Losses Unpaid (for Losses Not Reported December 31, 1916)		\$ 1 528.74
Gross Premiums (Less Reinsurance), Received and Receivable upon All Unexpired Fire Risks—Unearned Premiums		60 220.68
First Mortgage Loans on Real Estate	\$105 188.78	
Interest Due		30.00
Unpaid Salaries, Etc.		261 91
Unpaid Losses Resisted		86.00
Accounts Payable		24.23
Collateral Loans	1 575.00	
Capital		100 000.00
Losses Due from Other Companies Account Reinsurance	57.34	
Gross Premiums Received		37 019.13
Reinsurance Premiums Received		11 706.49
Bonds	3 000.00	
Interest Received on Mortgage Loans		2 698.05
Interest Received on Bonds and Dividends		506.00
Interest Received on Deposits		18.05
Interest Received on Bills Receivable		12.48
Interest Received from Other Sources		30.00
Stocks	94 710.00	
Losses Paid Policyholders	18 431.07	
Salaries Paid	100.00	
Federal Taxes Paid	81.25	
State County Taxes Paid	239 93	
Commissions Paid for Selling Securities	19.25	
Cash	44 61	
Salvage Received		1.11
Commissions Paid General Agents	10 125.05	
Interest Paid	3.25	
Bank (Checking Account)	6 027.16	
Received from Losses Reinsured		1 353.95
Dividends Paid Stockholders	6 000.00	
Certificates of Deposit	2 276.12	
Agents' Balances Representing Business Written Subsequent to Oct. 1, 1916	7 045.11	
Agents' Balances Representing Business Written Previous to Oct. 1, 1916	1 778.92	
Bills Receivable	383.89	
Second Mortgage Loans on Real Estate	127.59	
Cotton	463.35	
Surplus		42 180.85
	\$257 677.67	\$257 677.67

The market value of stocks is $1,400 in excess of the book value. The company has non-ledger assets as follows:

Interest Due on Mortgages	$ 590.69
Interest Accrued on Mortgages	1 555.32
Interest Accrued on Bonds	30.00
Interest Due on Collateral Loans	7 95
Interest Accrued on Collateral Loans	34.93
Interest on Deposits Accrued	59.60
Interest on Bills Receivable	2.97

From the above information fill out pages 2, 3, 4, and 5 of the annual statement for the Insurance Department on the attached form.

NOTE: In lieu of statement required present balance sheet and Profit and Loss account. (*North Carolina, August,* 1917.)

7. The following annual report of the mutual fire insurance company follows the form required by State Insurance Departments. You are asked to rearrange the items in statements conforming to general commercial practice, disregarding the legal requirement distinguishing between "admitted" and "not admitted" assets.

Annual Statement of the

LIMITED MUTUAL FIRE INSURANCE COMPANY

For the Year Ended December 31, 1919

Amount of Ledger Assets (as per Balance) December 31 of Previous Year			$23 081.44
INCOME			
Gross Premiums		$34 574.24	
Deduct:			
(*a*) Reinsurance Premiums	$1 144.68		
(*b*) Return Premiums	880.10	2 024.78	
Total Net Premiums Written			$32 549.46
Gross Interest on Bonds and Dividends on Stocks, Less $100.62 Accrued Interest on Bonds Acquired during 1919		$ 880.74	
Gross Interest on Deposits in Banks		85.22	
Interest on Deferred Premium Payments		22 14	
Total Interest			988.10
Excess Remittances from Policyholders			.10
Additions to Furniture and Fixtures			125.60
Gross Increase, by Adjustment, in Book Value of Ledger Assets, *viz:*			7.19
Total Income			$33 670.45

Annual Statement of the

LIMITED MUTUAL FIRE INSURANCE COMPANY

For the Year Ended December 31, 1919.—*Continued*

DISBURSEMENTS

Losses—Actual Amounts Paid Policyholders		$ 5 811.11	
Reinsurance Received		62.83	
			$ 5 748.28
Loss Adjustment Expenses			141.76
Agents' Compensation			1 742.82
Salaries and Fees—Directors, Officers, and Clerks			4 485.00
Rents:			
Office		$ 150.00	
Safe Deposit Box		3.00	
			153.00
Furniture and Fixtures			125.60
Inspections and Surveys, Including Underwriters' Boards and Tariff Associations			124.94
Federal Taxes			359.82
Taxes, Licenses, and Fees:			
Fire Department Fees		$ 101.93	
Fire Patrol and Salvage Corps Fees		23.53	
			125.46
Postage, Telegraph and Telephone, Exchange, and Express			349.28
Advertising	$ 887.00		
Printing and Stationery	475.44		
			1 362.44
Miscellaneous, Itemized:			
(*a*) Officers' Traveling Expenses	$ 153.82		
(*b*) Auditing Company's Books	30.00		
(*c*) Surety Bonds	22.50		
(*d*) Sundry General Expenses	31.23		
			237.55
Dividends to Policyholders			5 303.87
Gross Decrease, by Adjustment, in Book Value of Ledger Assets, *viz.:*			
Bonds			22.31
Total Disbursements			$20 282.13
Balance			$36 469.76

Annual Statement of the

LIMITED MUTUAL FIRE INSURANCE COMPANY

For the Year Ended December 31, 1919.—*Continued*

LEDGER ASSETS

Book Value of Bonds		$29 519.32	
Cash in Company's Office	$1 167.18		
Deposits in Banks on Interest	3 524.60		
		4 691.78	
Policyholders' Balances Representing Business Written Subsequent to October 1, 1919		1 614.48	
Policyholders' Balances Representing Business Written Prior to October 1, 1919		20.64	
Furniture and Fixtures		623.54	
Total Ledger Assets as per Balance			$36 469.76

NON-LEDGER ASSETS

Interest Accrued on Bonds		259.36
Gross Assets		$36 729.12

DEDUCT ASSETS NOT ADMITTED

Furniture and Fixtures	$ 623.54	
Policyholders' Balances, Representing Business Written Prior to October 1, 1919	20.64	
		644.18
Total Admitted Assets		$36 084.94

LIABILITIES

Gross Premiums (Less Reinsurance) Received and Receivable upon All Unexpired Fire Risks $33,041.38; Unearned Premiums		$17 449.21
Reinsurance Premiums, Due or Accrued		549.11
Estimated Amount Hereafter Payable for Federal, State and Other Taxes Based upon the Business of the Year of This Statement:		
Federal Taxes (Actual)	$ 30.74	
Fire Department Fees (Estimated)	150.00	
		180.74
All Other Liabilities, *viz.:* Excess Premium Payment		.10
Total Amount of All Liabilities		$18 179.16
Surplus		17 905.78
Total		$36 084.94

Underwriting and Investment Exhibit Showing the Sources of the Increase and Decrease in Surplus during 1919

Underwriting Exhibit

Premiums					
Total Premiums		$32 549.46			
Add Unearned Premiums December 31, 1918		9 238.63			
Total		$41 788.09			
Deduct Unearned Premiums December 31, 1919		17 449.21			
Premiums Earned during 1919			$24 338.88		
Underwriting Profit and Loss Items					
Policyholders' Balances Not Admitted December 31, 1918		$ 163.13			
Policyholders' Balances Not Admitted December 31, 1919		20.64			
Gain from Underwriting Profit and Loss Items			142.49		
Underwriting Income Earned during 1919				$24 481.37	
Losses					
Loss Paid or Incurred during 1919			$ 5 748.28		
Underwriting Expense					
Underwriting Expenses Paid during 1919, per Disbursement Exhibit		$ 9 207.67			
Deduct Underwriting Expenses Unpaid December 31, 1918, per Liability Exhibit of 1918 Statement, *viz.:*					
Reinsurance premiums	$188.12				
Federal Taxes	16.88				
Fire Department Fees (Est.)	150.00	355.00			
Balance		$ 8 852.67			
(*a*) Add Underwriting Expenses Unpaid December 31, 1919, per Liability Expenses, *viz.:*		729.85			
Underwriting Expenses Incurred during 1919			9 582.52		
Underwriting Losses and Expenses				15 330.80	
(*b*) Gain from Underwriting during 1919 (Carried Forward)					$ 9 150.57

Underwriting and Investment Exhibit Showing the Sources of the Increase and Decrease in Surplus During during 1919.—*Continued*

			Gain in Surplus	Loss in Surplus
INVESTMENT EXHIBIT				
Interest and Rents				
(Brought Forward)			$ 9 150.57	
Interest Received during the Year	$ 988.10			
Deduct Interest Accrued December 31, 1918	199.56			
Balance	$ 788.54			
Add Interest Accrued December 31, 1919	259.36			
Interest and Rents Earned during 1919	$ 1 047.90			
Profit on Investments				
Gain from Change in Difference between Book and Market Value during 1919	7.19			
Investment Income Earned during 1919		$1 055.09		
Loss on investments				
Loss from Decrease in Book Value of Investments		22.31		
Gain from Investments during 1919			1 032.78	
MISCELLANEOUS EXHIBIT				
Dividends Declared to Policyholders during 1910				$ 5 308.87
Total Gains and Losses in Surplus during 1919			$ 10 183.35	
Surplus December 31, 1918, per 1918 statement		$13 026.30		
Surplus December 31, 1919		17 905.78		
Increase in Surplus during 1919				4 879.48
Totals			$10 183.35	$10 183.35

(*Wisconsin, May,* 1920.)

PROBLEMS FOR CHAPTER XII

LIFE INSURANCE COMPANIES, REAL ESTATE, AND INSURANCE AGENTS

1. Karl Smith is a real estate broker and agent who, among other things, manages properties in consideration of commissions, ranging from 3 to 5 per cent on rent collections. For the last two years his books have been kept in haphazard fashion and in violation of the law of agency. They are incomplete as to footings and postings; no trial balance of the general ledger has been obtained and no reconciliation of bank balances has been established during the above-mentioned period. The tenants' rent book is a species of "tickler," in which the current rent charges are entered in pencil and inked in when paid; the names of the tenants of properties not leased are also entered in pencil and erased when the tenants move, the new names being entered in the places thus left vacant.

Having accidentally discovered irregularities in the tenants' book, Karl Smith has discharged his bookkeeper-cashier and engaged an accountant to conduct an examination of his books, records, and accounts, to discover the extent of the shortage, which he fears is considerable, and to install a new system of accounts.

Trial Balance

Cash	$ 350.20	Karl Smith, Capital	$ 4 360.40
Petty Cash	100.00	Commissions	22 510.00
The Augusta Terrace (*a*)	215.00	Phoenix Insurance Company	470.00
The Victoria Court (*a*)	805.00	London Insurance Company	450.10
The St. Quentin Court (*a*)	650.00	The Frederic Apartment (*f*)	2 385.30
The Audubon Court (*a*)	270.00	The Venetian Court (*f*)	2 500.00
The Evening Despatch (*b*)	75.00	The Franklin Castle (*f*)	3 231 00
The Morning News (*b*)	35.00	St. Martin Hall (*f*)	2 850.70
The Union Wall Paper Company (*b*)	111.20	Tenants	1 550.00
The Janitors' Supplies Company (*b*)	45.25		
Insurance Account (*c*)	920.10		
Karl Smith, Drawings (*d*)	16 930.00		
Cash Shortage (*e*)	380.00		
Salaries	12 140.00		
Office Expense	3 130.00		
Furniture and Equipment	4 150.75		
	$40 307.50		$40 307.50

After spending considerable time in an attempt to place the books on an accounting basis, the accountant finally obtains the above trial balance of the ledger, as of September 30, 1912, installs a new system which will permit his client to fulfil his accounting duty as an agent, and renders a preliminary report accompanied by a statement showing clearly the financial status of the relations of Karl Smith to his principals:

Notations by the accountant:

(*a*) Remittances on account of collection of October rents paid in advance upon signing lease, not as yet credited to principals. Settlements to be made on the twenty-ninth of every month.

(*b*) Balances represent payments from March to June, 1912, for advertising, decorating, and supplies, for the account of managed properties. Paid bills cannot be found; no detail available; itemized receipted bills asked for by letter; no answer at September 30, 1912.

(*c*) Premiums on fire insurance placed by agent for account of sundry clients not principals. Premiums will be paid to agent if risk is accepted and he will deduct commissions of from 5 to 15 per cent from settlement with companies.

(*d*) Probably contains charges which might properly be capitalized under caption "Furniture and Fixtures" if positive information were available.

(*e*) Entries made in cash book by accountant, for rent collections appearing in monthly statements to principals but not appearing in cash book or in duplicate of bank deposits obtained from banks.

(*f*) According to the terms of his employment the agent must remit on the fifth day in every month.

Prepare the preliminary report and the statement submitted by the accountant to Karl Smith, as at September 30, 1912. (*New York, January*, 1913.)

2. An insurance firm acts as general agent for two insurance companies, Company A and Company B. On January 1, 1907, the books of the general agent disclose the following financial conditions:

Assets		
Cash	$ 2 340	
Agents Ledger, Company A	10 980	
Agents Ledger, Company B	15 360	
Furniture and Fixtures	1 000	
		$29 680
Liabilities		
Due to Company A	$ 5 890	
Due to Company B	7 437	
Partners' Account	16 353	
		$29 680

By treaty agreement between Companies A and B, this general agent has to reinsure 30 per cent of all A's risks in Company B, and 30 per cent of all B's risks in Company A. The general agents receive from each company a commission of 35 per cent on the net business written each month. The general agents pay 20 per cent commission on the net business to their agents, thus making net 15 per cent for themselves.

The agents of Company A report to the general agents premiums during January of $12,000, and return premiums of $2,000.

The agents of Company B report to the general agents premiums during January of $15,500, and return premiums of $2,750.

The expenses of the general agents during January amount to $2,000, and the partners' withdrawals amount to $1,000. They receive in cash from agents of Company A the sum of $11,000, and from agents of Company B the sum of $12,500. They pay to their companies during January their indebtedness as on the first of the month.

Prepare journal and cash book entries recording above transactions, taking into consideration reinsurances, commissions, etc., and prepare statement of assets and liabilities of the general agents after closing balance of month's profit into partners' accounts. (*Illinois, May*, 1907; *Washington, November*, 1913.)

3. The following is a trial balance taken from the books of a health and accident insurance company for year ending June 30:

DEBITS

Cash	$ 4 000
Securities—Mortgages	100 000
Bills Receivable	2 500
Stocks and Bonds	50 000
Bank, Current Account	4 000
Bank, Certificates of Deposit	5 000
Dividends	10 000
Profit and Loss Account	20 000
General Expense	1 000
Home Treatment, Indemnity	35 000
Interest Earned	4 000
Due from Sundry Agents	8 000
Reinsurance Account	900
Accounts Receivable	60 000
Furniture and Fixtures	1 000
Hospital Building and Equipment	50 000
Hospital Expense	10 000
Advertising, Printing, Etc.	2 000
Agents' Salaries and Expenses	1 500
Agents' Commissions	12 000
Salaries, Officers and Employees	6 000
Insurance Commissioner's Fees and Taxes	3 000
Postage and Expense	100
Cancellations	20 000
	$410 000

CREDITS

Capital Stock	$200 000
Surplus	40 000
Interest on Stock, Bonds, and Mortgages	3 000
Due Sundry Agents	2 000
Commissions, Reinsurance	500
Accounts Payable	2 000
Premium Accounts (One Year)	160 000
Contract Earnings on Medical Supplies	2 500
	$410 000

This company is subject to a general insurance law requiring 50 per cent of premiums to be set aside as a reserve for reinsurance. In addition to items included in trial balance, there is a list of claims in course of adjustment amounting to $5,000, also claims which were paid in July on notices received prior to July 1 of $3,000. There were worthless items carried as cash to the amount of $1,000. There were also liabilities incurred but not entered on the books prior to July 1, as follows:

Sundry Expense Amount Items	$ 200
Salaries Earned	1 000

Yearly premiums are payable in five instalments. Agents are paid by commissions, a stated percentage when business is secured and a final commission of 20 per cent when premiums are fully paid. Only paid commissions are considered in trial balance. Accounts receivable in trial balance represent unpaid premiums. Make statements as of June 30 of loss and gain and assets and liabilities. (*Michigan, December,* 1906.)

PROBLEMS FOR CHAPTER XIII

LAND DEVELOPMENT COMPANIES

1. On January 15, 1901, Howard Robinson and four others acquired a tract of 600 acres at a cost of $20,000. On March 1, 1901, they incorporate the Nob Hill Realty Company for the purpose of acquiring, subdividing, and selling this tract for residence purposes.

The par value of the stock is $100 per share, the capital $300,000, of which $120,000 is issued for the land purchased, and the balance of $180,000 is paid for in cash. The directors engage a landscape architect to lay out the tract, a special feature of which is to be a beautiful park, together with tree-lined boulevards and driveways. In accord with the architect's advice the directors defer marketing any portion of the property until the year 1911.

Owing to the errors in early development work, the company is compelled to borrow $50,000 at 6 per cent on March 1, 1910. The loan is secured by a mortgage on the entire property, with the customary release clause for individual lots upon payment of $25,000 of the loan and $1,000 on each lot for which release is demanded.

Sales of lots are made beginning March 1, 1911.

The sale contract provides that the company will maintain the park and driveways in perpetuity, and to insure this a fund will be created for the permanent maintenance and care of the park and driveways, the estimated annual expense of which is $6,000. It is agreed with purchasers of lots that one-third of all cash received from sales shall be invested in sound bonds yielding 4 per cent net until $150,000 has been so invested. It is further agreed that, upon the sale of all the lots, the bonds will be turned over to the board of trustees to be elected by lot owners and designated "Trustees of Nob Hill Park," who shall take over the management of the park and driveways.

In November, 1916, Robinson dies and, as a result of the inquiries made by the accountant for the executor, the following facts appear with respect to the financial affairs and accounts of the Nob Hill Realty Company:

It has been the practice of the directors to buy bonds after the close of each fiscal year. The books are in balance, but the total cost of the investment is not recorded and no entries appear with respect to the park fund for permanent maintenance, from which the bonds were to be purchased.

The tract consists of 400 lots of different sizes, but all of the same selling price. On February 28, 1917, forty lots are left unsold, sales of which will probably be consummated during the spring and summer of 1917.

Cash dividends have been declared and paid, but nobody appears to know what portion of dividends was earned and what portion represents liquidating dividends, if any. The accountant draws off two trial balances, as follows:

Trial Balance

	March 1, 1911	February 28, 1917
Debits		
Cash on Hand	$ 16 000	$ 252 000
Bonds		100 000
Real Estate	120 000	120 000
Improvements	160 000	160 000
Improvements Replaced	60 000	60 000
General Expense	24 000	84 000
Park and Driveway Maintcnance		36 000
Dividends Paid		430 000
	$380 000	$1 242 000
Credits		
Capital Stock	$300 000	$ 300 000
Sale of Lots		900 000
Interest on Bonds		12 000
Interest on Call Loans	30 000	30 000
Mortgage	50 000	
	$380 000	$1 242 000

From the foregoing data prepare journal entries, statement of profit and loss for the period, and balance sheet as of February 28, 1917. Disregard income tax adjustment. (*California, June*, 1917.)

2. As on January 1, 1890, a corporation is formed for the purpose of acquiring and conducting a cemetery and starts business on that date with a capital stock of $100,000 paid for in cash. The company first purchases 40 acres of land within easy access of a large city, paying for same at the rate of $1,000 per acre. It proceeds to expend considerable sums of money in the purchase and planting of trees and shrubs, laying out drives and pathways, sodding, building of glass houses, etc. The policy of the company is to withhold the selling of burial lots until after January 1, 1900, so as to allow the trees and shrubs to become more fully grown and in the expectation that with the growth of the city their property will become more valuable. In the year 1900 the company commences selling burial lots, and all are sold under a special provision whereby the company agrees to apply 50 per cent of all cash received on sales to the purchase of 4 per cent bonds until a total of $150,000 of such bonds shall have been so purchased. The agreement further provides that after all lots have been sold the company will wind up its affairs and the above bonds—until a total of $150,000 of such bonds shall have been so purchased—shall use the income of such bonds for keeping up the cemetery. It is the custom of the company not to purchase bonds until after the close of each fiscal year and after the total sales of that year have been determined.

In March, 1905, the directors of the company find that, while they believe the books to be in balance, no proper entries have been recorded showing total cost of their investment, and that no entries have been made with respect to the fund of $150,000 from which said bonds are to be purchased. While cash dividends have been declared and paid, the directors are in igno-

rance of what their profits actually have been and how much of the dividends so received have been out of their profits and how much in the nature of liquidating dividends, representing a return of their original investment. They, therefore, employ a certified public accountant to determine all these matters and to make the necessary entries on their books and render report to them. After determining the clerical accuracy of the books, the accountant draws off the two trial balances given below and from them prepares the necessary entries and obtains the information required by the directors.

Trial Balances

	January 1, 1900	January 1, 1905
DEBITS		
Real Estate	\$ 40 000	\$ 40 000
Improvements	45 000	45 000
Bonds		125 000
Administration Expense	20 000	46 000
Upkeep of Cemetery		45 000
Dividends Paid		130 000
Cash	7 000	40 800
	\$112 000	\$471 800
CREDITS		
Interest Account Representing Interest at 4 Per Cent on Unexpended Cash during Development Period	\$ 12 000	\$ 12 000
Bond Interest Account		9 800
Sale of Lots		350 000
Capital Stock	100 000	100 000
	\$112 000	\$471 800

An inventory of their unsold lots as on January 1, 1905, shows that they have 10 acres left unsold of equally desirable character with that already sold. Draw up entries, prepare Profit and Loss account for period, and balance sheet as on January 1, 1905, in same manner as if you had been the accountant engaged. In any interest calculation use 4 per cent simple interest. (*Illinois, May,* 1907.)

3. A company is formed for the purpose of acquiring certain real estate and gradually realizing on the same. The directors request you to open the books from the following details:

Authorized Capital Stock	\$5 000 000
Capital Stock Issued for Real Estate Acquired	2 500 000
Capital Stock Issued to Promoters for Services Rendered	1 000 000
Appraised Value of Real Estate	7 500 000
6 Per Cent First Mortgage Gold Bonds Issued and Fully Subscribed on Incorporation, at 80 Per Cent	2 500 000
Promotion Expenses, Etc., Payable in Cash	100 000
Liabilities Assumed by Company	1 400 000

The client does not want your opinion as to the policy of adopting the appraised value for real estate, but you are requested to advise a sound accounting policy for the treatment of real estate sold. The following transaction is typical:

Real estate of the appraised value of $1,000 is sold for $1,500, of which 40 per cent is received in cash and the balance in ten notes of equal amounts, maturing semi-annually over the succeeding five years. Give entries necessary to record the transactions, assuming the cash was received and one note duly met, but foreclosure followed. Ignore the question of interest on the vendor's lien notes. (*Illinois, May,* 1916.)

4. A land development company, capitalized at $425,000 on January 1, 1911, owns a large parcel of land in Westchester County. $400,000 of the capital stock has been issued for the land, which has been divided into one thousand (1,000) lots of equal dimensions. The organization consists of an administrative office located in New York City and an agency office located in White Plains. At the head of the White Plains office there is a manager who receives a compensation of 3 per cent of the gross sales. The terms of his contract compel him to keep a set of books in which the entries are made from memoranda submitted by the New York office, and debar him from selling any lot at a price less than the book value at which it stands. All expenses are to be borne by the New York office.

	December 31, 1911	December 31, 1912		December 31, 1911	December 31, 1912
RECEIPTS			DISBURSEMENTS		
Capital Stock	$ 3 000.00		Office Expense, New York	$ 1 435.00	$ 1 650.00
Sales (60 Lots)[1]	19 000.00		Office Expense, White Plains	2 647.82	2 530.50
Sales (160 Lots)		$54 425.00	Salaries of Selling Agents	8 500.00	9 000.00
Interest on Purchase Money Mortgage	300.00	2 000.00	Compensation White Plains Manager	870.00	
Deposits to Secure Sales		215.00	Advance to Manager White Plains Office		1 500.00
	$22 300.00	$56 640.00		$13 452.82	$14 680.50

[1] Sold for $29,000.

In connection with accounting, the company's policy is to capitalize yearly, at December 31, by prorating over the lots unsold: (*a*) the interest at 4 per cent on the book value of the lots unsold at January 1 of the prior year, (*b*) the operating losses, if any, of the period just closed. It is understood, however, that if the operating results of any period are adequate for the purpose, they will be applied to offset the capitalization of losses of former years.

The cash book kept at the New York office shows for the two years ended December 31, 1912:

The general ledger, which has not been closed for the two years of the company's life, shows at December 31, 1912, purchase money mortgage, $38,000; investment in land, $400,000. The sale price of the lots has been obtained

from memoranda established by the president of the company and now in the possession of the officers of the company, as well as of the White Plains manager. You have been retained to close the books as of December 31, 1912, and to submit financial statements.

Prepare:

(*a*) The balance sheet at the close of business December 31, 1912.

(*b*) The general ledger accounts for the two years ending December 31, 1912, whether closed or remaining open. (*New York, January*, 1913.)

5. The Homes Realty Company was organized January 1, 1906, to own and sell suburban lots, and is operated by a manager under an agreement of which the following is a digest:

The company is to furnish and maintain offices at New York and at the site of the company's property in the suburbs of Philadelphia, and also to pay the salaries of clerks and salesmen. The manager is to receive 3 per cent commission on the sales.

The property is to be reappraised at the beginning of each year by adding to the account 4 per cent on the book figure of the property unsold at the beginning of the preceding year, and by adding the amount of any losses which may have occurred in the preceding year, such additions for losses to be canceled in subsequent years if they are made up by profits. The figures so added shall be prorated over the remaining lots for sale, and the manager is bound not to sell any property at less than the book figure.

The books have been kept for two years without adjusting and closing entries and the accounts show the following figures at December 31, 1907:

Property Account (Original Purchases of 1,000 Lots of Equal Value)	$400 000.00
Capital Stock	400 000.00
New York Office Expense	3 085.00
Philadelphia Office Expense	5 178.32
Salesmen's Salaries	17 500.00
Sales 220 Lots for	111 425.00
Deposits on Account of Sales Not Yet Closed	215.00
Mortgages Held on Property Sold	38 000.00
Cash	49 096.43
Creditors' Accounts (for Office Supplies)	643.75
Interest on Mortgages Received	576.00

There is also an amount of $125 interest due and not received, and $235 accrued interest on mortgages at December 31, 1907.

These figures for expenses and sales appear up to December 31, 1906:

New York Office Expense	$ 1 435.00
Philadelphia Office Expense	2 647.82
Salaries of Salesmen	8 500.00
Sales 60 Lots for	29 000.00

Prepare a detailed exhibit of operations, also balance sheet as at the beginning of the third year with exhibit of the Property account. (*New York, June*, 1910.)

6. Trial Balance, September 30, 1913

Cash	$ 7 094.38	
First Mortgage Land Notes	222 846.00	
Second Mortgage Land Notes	14 633.00	
Accounts Payable		$ 4 260.85
Bills Payable		35 000.00
Bonds Payable		400 000.00
Commissions Payable		5 743.19
Real Estate—Hilltop Heights	153 000.00	
Real Estate—Paradise Park	261 000.00	
Real Estate—Tango Terrace	160 000.00	
Capital Stock		300 000.00
Trunk Sewer (See Note)	11 500.00	
Development—Hilltop Heights	21 250.00	
Development—Paradise Park	50 750.00	
Development—Tango Terrace	40 000.00	
Taxes—Hilltop Heights	1 881.79	
Taxes—Paradise Park	3 763 57	
Taxes—Tango Terrace	5 540.87	
Agent's Commissions—Hilltop Heights	7 903.78	
Agent's Commissions—Paradise Park	15 807.55	
Agent's Commissions—Tango Terrace	7 431.51	
Expenses—Hilltop Heights	498.03	
Expenses—Paradise Park	222.70	
Expenses—Tango Terrace	659.75	
Advertising—Hilltop Heights	2 666.09	
Advertising—Paradise Park	3 718.40	
Advertising—Tango Terrace	3 816.26	
Sales—Hilltop Heights		78 000.00
Sales—Paradise Park		132 000.00
Sales—Tango Terrace		86 100.00
Rents Received—Hilltop Heights		211.09
Rents Received—Tango Terrace		1 629.16
Interest	26 815.37	
Officers' salaries	10 300.00	
Wages—Stenographers and Clerks	6 827.50	
Office Expenses	1 388.58	
General Expenses	1 629.16	
	$1 042 944.29	$1 042 944.29

The foregoing is the September 30 (1913) trial balance of the Altruria Land Company, a corporation engaged in the purchase, development, and sale of various suburban properties, now operating three tracts, the areas of which are as follows:

	Bought, Square Feet	Sold, Square Feet	Remainder, Square Feet
Hilltop Heights	850 000	120 000	730 000
Paradise Park	1 450 000	240 000	1 210 000
Tango Terrace	2 000 000	210 000	1 790 000

The trunk sewer, which cost $11,500, drains Hilltop Heights and Paradise Park, which properties adjoin each other, but it has no connection with Tango Terrace, which is in a different locality. The cost of this sewer has not been divided between the properties it drains, but the management decides that its cost should be prorated on a basis of the areas of the tracts affected.

On September 30, 1913, interest prepayments amount to $661.41 and prepaid taxes are as follows: Hilltop Heights, $213.42; Paradise Park, $434.87; Tango Terrace, $620.96; total, $1,269.25.

You are required to show: (1) Trading account for each property; (2) Profit and Loss account; (3) balance sheet. (*Virginia, October*, 1913.)

7. The following is a financial statement of the Homestead Land Company on commencement of business, January 1, 1908:

Assets		
Land		$500 000
Cash		70 000
Discount on Bonds		5 000
Total		$575 000
Liabilities		
Capital Stock		$100 000
Bonds Authorized	$500 000	
Less Not Sold	25 000	
		475 000
Total		$575 000

The land shown represents 10,000 acres, which were acquired at the rate of $50 per acre. The bonds issued by the company are dated January 1, 1908, maturing January 1, 1928, and bear interest at 5 per cent per annum, payable July 1 and January 1. Under these bonds the company is required to pay into the hands of the trustee, as a sinking fund for their redemption, the sum of $50 for each acre of land for which the company has received full payment and conveyed title. (Note that the company has complied with this requirement during the year and the trustee has advised, at December 31, 1908, that he had in his possession the sum of $153,500, of which sum $3,500 represented interest on the funds in his hands.)

The object of the company is to divide its property into 10-acre plots, which it sells at the rate of $75 per acre when paid for in cash, or $100 per acre when the plots are sold on the instalment payment plan. This latter plan provides for the payment of $20 per acre in cash at the date of purchase, and the balance to be covered by four notes of equal amounts, maturing one, two, three, and four years after the date of purchase, the first two notes not bearing interest, but the latter two to bear interest at the rate of 5 per cent per annum. During the year ended December 31, 1908, 300 plots were sold for cash and title conveyed to the various purchasers, also during the same year 300 plots were sold on the instalment plan as outlined in the foregoing:

Expenses not subject to inference from the foregoing:

Administration	$2 500
Salaries	5 000
Advertising	5 000
Taxes Accrued, Not Paid	2 500

Prepare a balance sheet at December 31, 1908, and a Profit and Loss account for the year ended on that date. (*Pennsylvania, November*, 1911.)

8. The Racine Development Company was organized for the purpose of improving a tract and selling lots for home sites. The trial balance at the close of the first year follows:

Cash	$ 11 500	
Notes Receivable	3 000	
Contracts Receivable	35 000	
Advances to John Smith, Salesman	1 800	
Advances to J. B. Green, Salesman	1 800	
Treasury Stock	10 000	
Real Estate	300 000	
Development Expenses	50 000	
Development Equipment	35 000	
Office Equipment	1 500	
Selling Equipment, Autos	2 500	
Notes Payable		$ 16 000
Accounts Payable		8 400
Unearned Commissions		10 000
Reserve for Depreciation Development Equipment		3 500
Reserve for Office Equipment		150
Reserve for Selling Equipment		250
Bonds Payable		200 000
Capital Stock		200 000
Sales of Lots Unrealized		40 000
Selling Expenses	3 500	
Selling Commissions, Incurred	10 000	
Officers' Salaries	6 000	
General Office Expenses	1 500	
Interest Paid	5 200	
	$478 300	$478 300

The first year the tract was laid off into 2,000 lots expected to be sold at three prices as follows:

Section A	500 lots at $ 800 per lot
Section B	700 lots at 1 200 per lot
Section C	800 lots at 2 000 per lot

During the first year 50 section A lots were sold at $800, terms $50 cash down with contract and $10 per month until the purchase price is paid in full. During the year $5,000 cash is received on lot contracts.

The entire development expense is estimated to be $200,000 and is expected to be completed within five years. The development during the first year benefited chiefly the lots of section A.

The salesmen are to receive $200 per lot sold, as follows: 25 per cent of all receipts on lot contracts are to be credited to salesmen's accounts annually. Each salesman is to receive advances of $150 per month to apply on commissions. Smith sold 30 lots, and Green 20 lots.

Prepare an operating statement showing cost of realized sales and sales unrealized; also a balance sheet as of the end of the first year. Set up journal entries necessary to adjust sales, cost of sales, and commissions.

The second year $75,000 was spent on development which benefited all of the lots more or less; 200 lots from section A, 300 from section B, and 100 from section C were sold. The salesmen received $300 per lot sold from section B and $500 per lot sold from section C. The rate for section A lots was the same as the first year.

Show journal entries to adjust the Sales, Cost of Sales, and Commission accounts for the close of the second year. $50,000 was received on lot contracts, $20,000 from section A lots, $20,000 from section B lots, and $10,000 from section C lots. (*Wisconsin, November*, 1919.)

9. J. C. Thompson conducts a general real estate business but specializes in opening up new subdivisions. He agreed with M. C. Roberts, that, if Roberts would furnish the capital necessary to buy and develop the Happy Home subdivision, he, Thompson, would undertake to sell it for their joint account. Thompson was to receive no salary for selling the property and keeping the books, but all other selling expenses were to be charged as expense. No allowance is to be made for interest on partners' balances, but all other expenses are to be charged and the profits divided equally.

On February 1, 1916, they purchased the 20 acres comprising the subdivision, at $3,000 per acre, paid one-half in cash from Roberts' funds, and gave a 6 per cent mortgage for the balance. By the terms of the mortgage any part of the property could be released from the mortgage at any time by paying the pro rata amount.

In February and March the property was improved by grading, etc., at a cost of $10,000, which was also paid from funds supplied by Roberts.

The property was subdivided into 160 lots of equal size, 80 of which were listed to sell at $900 and the balance at $600.

The $900 lots were sold, 45 in May and 23 in June, and 12 were still unsold at June 30. The $600 lots were sold, 29 in May and 35 in June, leaving a balance of 16 still unsold at June 30. All the lots were sold for one-half cash, and the mortgages for the balance were immediately sold to banks at par without indorsement or guaranty. In each case the lots were released from the purchase-money mortgage by payment of the pro rata amount. The releases were obtained and the payments made on the last of the month in which the sale was made.

The expenses of advertising and selling, amounting to $11,000, were paid by Thompson from the proceeds of the sales which he had deposited

in his own account when they were received. He also made the payments on the mortgage.

Prepare a statement showing the respective interests of the two partners, and also a statement showing the profits to June 30, 1916. (*Illinois, December*, 1916.)

10. A land company is incorporated with capital of $50,000. It purchases a tract of 104 acres of land at $500 an acre, paying therefor $32,000 in cash and giving capital stock for the remainder of the consideration, and at the same time giving a mortgage to a title guaranty company to secure a loan of $35,000 which is to be satisfied by partial payments as lots are sold and released.

Obligations are incurred on book accounts as follows: for organization expense, $619; for grading and paving, $23,400; for water mains (a separate enterprise to be reimbursed by service charges when ready for operation), $4,000.

Direct expenditures of cash are made: for organization expense, $537; for grading and paving, $11,060; for water mains, $1,020; for maps, $700; for advertising, $1,200; for salaries and expenses, $8,679. Settlements are made with creditors by cash, $8,784, and by capital stock issue, $10,000; the remaining capital stock is issued for cash.

Lots sold on purchase-money mortgages, $24,857; instalments collected, $9,442; cancellation of title company mortgage on lots sold, $8,050; and purchase-money mortgages pledged for loan of $10,000.

Interest paid to title company, $1,849; interest received on purchase-money mortgages, $924. Inventory of lots unsold, including improvements at cost, $66,575, to which latter 10 per cent is to be added for appreciation of value. Maps on hand, $500.

Prepare (*a*) cash summary; (*b*) skeleton ledger accounts; (*c*) Profit and Loss account; (*d*) balance sheet covering the transactions above stated. (*New York, June*, 1908.)

11. A land company owns a number of city lots, the price of each of which is fixed by schedule, and offers them for sale under three distinct plans:

(*a*) A cash payment of 25 per cent of the price, and 75 per cent in five years, mortgage at 8 per cent, interest payable half yearly.

(*b*) A cash payment of 10 per cent of the price in exchange for which a bond for title is given, providing that the purchaser shall make monthly payments, that unpaid balances shall be subject to interest at 8 per cent per annum payable half yearly, and that title shall be given when purchase price and interest are paid.

(*c*) To the purchase price is added an amount calculated to represent the interest; the sum of these is then divided by 120, and bond for title is given providing for payment of the sum in 120 equal payments; on these being made, deed is to be executed.

Outline the entries for each transaction, especially those relating to the interest. (*Florida, April*, 1907.)

12. The following is the trial balance of a land development company which has been in business for a year:

Assets		Liabilities	
Real Estate	$108 000	Capital Stock (Authorized $300,000)	$75 000
Mortgages	96 000	Bills Payable	20 000
Bills Receivable	30 000	Sundry Creditors	15 000
Stock Subscription	12 000	Mortgages Payable	18 000
Balance Due on Real Estate Sold on Time	42 000	Interest and Discount	18 000
Mortgage Interest Received	5 000	Gains on Sales	25 000
Expenses	6 000		
Salaries	8 000		
Preliminary Expenses	16 000		
Taxes Paid on Mortgaged Real Estate	1 200		
Sundry Debtors	8 000		
Surveying and Engineering	4 800		
Cash in Bank	14 000		

In your opinion, is there a profit or a loss? The directors are very desirous of showing a gain. What could you recommend in order to meet their views, and yet care for the rights of the stockholders? (*Florida, April*, 1907.)

13. A suburban lot company sold a lot and dwelling to Bass for $2,627.37 and allowed in part payment an equity in a vacant lot owned by Bass in another addition. On the vacant lot, valued at $1,000, a lien of $608.91 existed, which lien was asssumed by the company. Tho company later sold the vacant lot to Wyerly for $1,032.50, receiving therefor $75 cash and a note for the balance. Wyerly made payments on his note of $247.95, of which $67.95 was to be applied as interest. Of the cash received from Wyerly, $33.82 was paid by the company as interest on the lien it assumed, the balance being applied on the principal. The company also received $100 in cash from Bass, which sum was used for improvements on the property sold him, and took his note for the balance of the purchase price.

What was the amount of the note given by Bass, and what the unpaid balance on the lien?

Make final trial balance. (*Texas, June*, 1915.)

14. C and D owned adjacent vacant real estate and after consideration decided to go into partnership. When the agreement was drawn on January 1, 1913, the situation was as follows:

C turned over the following properties, subject to encumbrances noted:

Tract	Valued at	Mortgage	Interest Accrued
1	$10 000	$ 5 000	$150
2	30 000	20 000	200
3	20 000	10 000	300
4	50 000	30 000	900

D turned over the following properties, subject to encumbrances noted:

Tract	Valued at	Mortgage	Interest Accrued
5	\$75 000	\$50 000	\$1 500
6	15 000	5 000	100
7	30 000	20 000	300
8	20 000	15 000	300

C turned in a cash fund of \$7,500 and the partnership assumed his liability on notes payable amounting to \$20,000.

D owned 10,000 shares in the Canadian Townsite Company which he transferred to the partnership at a valuation of \$50,000. The partnership assumed his obligations to the bank amounting to \$30,000.

During the year 1913 C operated the properties and sold the following:

On June 30, 1913: Tract No. 1 for \$15,000, the purchaser assuming the liability for mortgage and accrued interest. The cash was paid into the partnership bank account.

On September 30, 1913: One-half of Tract No. 4 was sold for \$35,000, the purchaser assuming \$20,000 of the mortgage. All interest on the entire mortgage has been paid to September 30, 1913.

On December 31, 1913: Tract No. 6 was sold for \$10,000, the purchaser taking over the mortgage and all interest to date.

On December 31, 1913: Tract No. 8 was sold for the amount of the mortgage and all interest to date.

C, in addition to paying all the interest, except as above noted, to December 31, 1913, paid the following expenses from his own pocket: (*a*) surveying, \$5,000; (*b*) legal, \$2,000; (*c*) office, \$1,000; and (*d*) salesmen, \$2,500.

D, not having been active, agreed to pay C \$2,500 in respect of C's work during the year.

At December 31, 1913, D agreed to purchase from C the latter's stock in the Aetna Copper Company at a price of \$40,000.

Record the above transactions by journal entry and thereafter prepare the necessary accounts for submission to the two partners, C and D. Profits and losses will be shared equally. (*Illinois, May*, 1916.)

15. Peter White, doing business as a realtor, submits his accounts, fully adjusted and ready to close, for your examination and audit:

Trial Balance, December 31, 1921

Cash	$23 328.00	
Tenants	1 856.00	
Due Owners for Property Sold		$ 5 356 00
Accrued Rents		1 856.00
Due Clients for Rents		13 818.00
Accounts Payable		31 220.00
Fees		250.00
Commissions		6 237.84
Discounts		360.00
Salaries	2 000.00	
Peter White's Drawing Account	4 000.00	
Office Furniture	500.00	
Capital		3 294.16
Investments (Personal)	30 708.00	
	$62 392.00	$62 392.00

Furnish a statement showing White's financial relations and status, with brief comments as the accountant. (*New York, January*, 1924.)

16. Claude Hyde conducts a general real estate business, but specializes in opening up new subdivisions. He agreed with George Morrison that, if Morrison would furnish the capital necessary to buy and develop the Forest Oak subdivision, he, Hyde, would undertake to sell it for their joint account. Hyde was to receive no salary for selling the property and keeping the books, but all other selling expenses were to be charged as expenses. No allowance is to be made for interest on partners' balances, but all other expenses are to be charged and the profits divided equally.

On February 1, 1922, they purchased the 20 acres comprising the subdivision at $3,000 per acre, paid one-half in cash from Morrison's funds, and gave a 6 per cent mortgage for the balance. By the terms of the mortgage any part of the property could be released from the mortgage at any time by paying the pro rata amount.

In February and March the property was improved by grading, etc., at a cost of $10,000, which was also paid from funds supplied by Morrison.

The property was subdivided into 160 lots of equal size, 80 of which were listed to sell at $900 and the balance at $600.

The $900 lots were sold, 45 in May and 23 in June and 12 were still unsold at June 30. The $600 lots were sold, 29 in May and 35 in June, leaving a balance of 16 still unsold at June 30. All the lots were sold for one-half cash, and the mortgages for the balance were immediately sold to banks at par without indorsement or guarantee. In each case the lots were released from the purchase money mortgage by payment of the pro rata amount. The releases were obtained and the payments made on the last of the month in which the sale was made.

The expenses of advertising and selling, amounting to $11,000, were paid by Hyde from the proceeds of the sales, which he had deposited in his own account when they were received. He also made the payments on the mortgage.

Prepare a statement showing the respective interests of the two partners and also a statement showing the profits to June 30, 1922. (*Maryland, November*, 1923.)

17. The Benson Company was incorporated June 1, 1922, for the purpose of building and selling dwelling houses.

The authorized capital was as follows:

Preferred cumulative 7 per cent stock	1 500 shares of	$100	each	$150 000
Common stock	1 500 shares of	5	each	7 500
				$157 500

At a meeting, after incorporation, the board of directors accepted an offer by the president, *in consideration* of the issuance to him of $7,500 common stock, to transfer to the company all his rights in a three years' option to purchase 150 lots of unimproved land of the Graham estate at $400 a lot.

On July 1, 1922, the company bought a block of land—120 lots, each 20 by 100 feet—from the Walker estate at $1,000 a lot, the vendor agreeing to do the grading and sewering, make roads, and pave sidewalks. A subsequent agreement provided, however, that, in consideration of the Benson Company's undertaking this work and assuming liability for a general sewer assessment of $4,800, the vendor should allow the sum of $42,000 from the $120,000 purchase price.

On September 1, 1922, a contract was made with the Eastern Construction Co. for the building of group 1, comprising two detached houses at an estimated cost of $15,000 each, and ten semi-detached houses at $12,000—total $150,000—all on the Walker estate.

The construction company (hereafter known as the contractor) was to receive a fixed fee of $10,000 for superintendence and management and to charge only the net cost of the labor, material, and direct expense of the work, whether done by its own men or by those of subcontractors. Payments were to be made through the contractor on monthly requisitions.

In consideration of a guarantee to bear any excess of total direct building cost over $172,000 (including the $10,000 fee, but excluding extras) the contractor was to receive 40 per cent of any saving between the original estimate of $160,000 and the guaranteed maximum cost of $172,000.

Extras were to be charged at cost plus a varying percentage for superintendence.

Building operations—group 1—began October 1, 1922, and were completed March 31, 1923.

A contract was made by the Benson Company direct with the Valgimigli Company March 1, 1923, for the excavation work and concrete foundations of two additional groups of houses on the Walker estate land as follows:

Group 2, for 10 semi-detached houses, contract price	$8 500
Group 3, for a terrace of 12 houses, contract price	6 800

Changes were made subsequently which increased these costs.

The total land of the Walker estate used for building operations was 45 lots as shown below:

Group 1, Riley Avenue:	
For each of 2 detached houses	45-foot frontage
For each of 10 semi-detached houses	31-foot frontage
Group 2, Riley Avenue:	
For each of 10 semi-detached houses	30-foot frontage
Group 3, Neild Avenue:	
For the terrace of 12 houses	200-foot frontage in all

The land was to be charged against completed houses at the rate of $1,000 a lot of 20-foot frontage.

Some of the houses were sold for cash outright; others with first and second mortgages. Two were sold direct; the rest through agents. The first mortgages were transferred from the building mortgages to the purchasers of the houses; the second mortgages were first taken by the Benson Company, which afterward sold them at a discount.

The following is a list of balances on the books of the Benson Company at May 31, 1923:

Land Purchase, Walker Estate, 120 Lots	$120 000	
Reserve for Development of Above Land		$ 42 000
Surveys of Walker Land	650	
Removal and Storage, 600 Loads of Top Soil	1 500	
Option on 150 Lots, Unimproved Land, Graham Estate	7 500	
Sales from Sand Pit, Walker Land		1 200
Sales of Top Soil, 90 Loads		450
Field Office, Cost of Building	1 650	
Assessment on 120 Lots, Walker Land, for District Sewer	4 800	
Organization Expense, Legal and Other Charges	1 620	
Retaining Fee to Lawyer, One Year to May 31, 1923	1 000	
Legal Charges for Mortgages and Sales of Houses	450	
Real Estate Taxes on 120 Lots, Walker Land, to May 31, 1923	2 400	
Outstanding First Mortgages on Houses Unsold, 1 Detached, $9,000; 1 Semi-detached, $7,000		16 000
Commissions, Etc. on Building Loans	4 800	
Interest, Etc. on Building Loans	750	
General Expense, June 1 to November 30, 1922	3 200	
General Expense, December 1 to May 31, 1923	5 500	
Capital Stock Issued, Preferred, 7 Per Cent Cumulative		125 000
Capital Stock Issued, Common		7 500
Group 1:		
Paid to Contractor, on Requisition	156 600	
Paid to Contractor, Fixed Fee	10 000	
Paid to Contractor, for Extras and Other Fees	24 310	
(Apportion the Above Three Items, 10 Per Cent on Each detached and 8 Per Cent on Each Semi-detached House.)		

Balance Due Contractor for Group 1		$ 1 910
Transfer of Labor and Material to Group 2		175
Transfer of Labor and Material to Group 3		125
Inspection Fees for Houses	$ 250	
Gifts and Bonuses for Houses	150	
Compensation Paid for Cancelation of Order for Mill Work Because of Changes in Plans	1 500	
Hire-purchase Instalments, Saw Mill	150	
Fire Insurance on 12 Houses	90	
Coal for Heating Houses during Construction	320	
Planting Gardens and Making Lawns, 12 Houses (Apportion According to Feet Frontage.)	2 000	
Sales of Houses:		
1 Detached		28 500
9 Semi-detached		191 650
Loss on Sales of Second Mortgages:		
1 Detached House	2 100	
6 Semi-detached Houses	10 375	
Commissions on Sales of Houses:		
1 Detached	662	
6 Semi-detached	3 200	
Grading (One-half Each, Groups 1 and 2)	4 500	
Sewering (One-half Each, Groups 1 and 2)	2 500	
Development, 75 Unimproved Lots, Walker Land	13 400	
Architect's Fees for Plans, Specifications, and Supervision:		
Group 1	4 000	
Group 2	620	
Group 3	600	
Balance Due to Architect		1 220
Work Billed and Paid, Group 2	9 500	
Work Billed and Paid, Group 3	7 200	
Valgimigli Company, 10 Per Cent Retained		1 670
Group 2, Transfer from Group 1	175	
Group 3, Transfer from Group 1	125	
Hire-purchase Payments, Concrete Mixer (Used Equally in Groups 1, 2, and 3)	420	
Office Furniture and Fixtures	800	
Petty Cash Balance	250	
Fire Insurance, Field Office	15	
Notes Payable		10 000
First National Bank	15 768	

From the foregoing, prepare:

(a) Statement showing the profit or loss on the operations for the period to May 31, 1923, with the average cost and gross profits on the detached and semi-detached houses sold.

(b) Balance sheet as at June 1 (May 31), 1923, after making such adjustments, provisions for reserves, etc. as you think necessary from the details presented and from the following audit notes:

One detached and one semi-detached house of group 1 remained unsold May 31, 1923.

Plant, material, and loose tools remaining on hand from group 1 operations were valued at \$2,250. The original cost, \$3,500, had been charged to material of group 1.

The field office was estimated to have a scrap value of \$150 after three years' use.

The contractor for group 1 is to be charged \$250 for use of the field office.

Of top soil stored, 510 loads were on hand May 31, 1923.

On first mortgages of \$16,000 on houses unsold interest at the rate of 6 per cent per annum had been paid to March 31, 1923.

Fifty per cent of amount paid for hire-purchases instalments is to be written off for wear and tear.

The by-laws of the company provide for salaries as follows: The president is to receive 10 per cent of the net profits for management; a further 10 per cent is to be divided amongst five other directors. (*American Institute of Accountants, November, 1923.*)

18. The South Beach Realty Company calls upon you to prepare a balance sheet as at December 31, 1923, and construct the opening entries in a new set of double-entry books. The following information has been acquired from the records of the company. The company purchased a large tract of land for \$50,000 which is being developed into residential lots which are offered for sale upon a basis of 10 per cent cash and balance in monthly payments. The plat of the land shows that there are to be three subdivisions, A, B, and C, with lots priced to sell as follows:

Subdivision A	500 lots at	\$500 each
Subdivision B	1 500 lots at	100 each
Subdivision C	2 000 lots at	50 each

The engineer's estimate as to the cost of developing the property is \$250,000, of which he can allocate \$30,000 to subdivision A, \$15,000 to subdivision B, and \$5,000 to subdivision C. The balance will be used to improve all three subdivisions which cannot be allocated. To date there has been \$100,000 spent in development work, of which \$20,000 was spent on subdivision A, \$10,000 on subdivision B, and \$70,000 on general development work. Commissions are paid to salesmen at the rate of 5 per cent of sales price at the time sales contracts are executed and delivered to company. The company has spent \$25,000 for administrative expenses and has paid real estate taxes of \$2,500. These taxes are payable on October 1 and are for the year ended October 1, 1924. The company has spent \$10,000 in advertising, of which there is \$1,000 worth of advertising booklets on hand December 31, 1923. There is a mortgage dated April 1, 1923, for \$20,000 due April 1, 1926, bearing interest at 6 per cent payable in advance semi-annually. The interest has been paid to April 1, 1924. This mortgage was assumed in the purchase of our original tract of land. The capital stock of the company is represented by 2,500 shares of common stock, par value \$100, paid for in cash at date of organization. The total sales and collections to date have been as follows:

Subdivision A, sales of $100 000	with collections of	$12 500
Subidvision B, sales of 70 000	with collections of	7 500
Subdivision C, sales of 20 000	with collections of	1 500

During the period there have been 10 lots of subdivision A returned, upon which there had been paid $500. Where purchaser defaults, the payments are not refunded.

Cash on hand and in bank, $78,300. Office furniture and fixtures are appraised at cost by the company at $15,000.

Prepare the balance sheet and opening entries. (*District of Columbia, June*, 1924.)

PROBLEMS FOR CHAPTER XIV

TIMBER, LOGGING, AND SAWMILL COMPANIES

1. A lumber company issues the following statement and one of the stockholders submits it to you, as he cannot understand how 135,000 feet sold at an average of $8.15 per thousand can produce a profit of $370 with a cost of $6.50 por thousand. Make your report with reasons why the statement is in error and illustrate with a new statement of operation, applying the inventories where they correctly belong at proper value and showing the cost of each operation and the cost of the material as it works through from operation to operation.

PINE TOP LUMBER COMPANY

Statement of Operation, June 1, 1913

INCOME		Total	Average Cost
Sales:			
100 000 Feet Rough Lumber		$ 750.00	$ 7.50
35 000 Feet Dressed Lumber		350.00	10.00
		$1 100.00	$ 8 15
EXPENSE			
Logging:			
400 000 Feet		$1 200.00	$ 3.00
Hauling to Mill:			
300 000 Feet		300.00	1.00
Sawing at Mill:			
200 000 Feet		300.00	1.50
Planing:			
50 000 Feet		50.00	1.00
		$1 850.00	$ 6.50
Less Inventory (Estimated Value)			
100 000 Feet Logs in Woods at $2.50	$250.00		
100 000 Feet Logs at Mill at $4.00	400.00		
50 000 Feet Rough Lumber at $7.00	350.00		
15 000 Feet Dressed Lumber at $8.00	120.00	1 120.00	
Cost		$ 730.00	
Profit		370.00	
		$1 100.00	

(*Virginia, October*, 1913.)

2. From the following trial balance and inventory prepare a cost sheet, profit and loss statement, and statement of assets and liabilities or a financial statement:

Lumber Inventory	\$60 088.95
Lath Inventory	449.44
Merchandise Inventory Beginning of Period	7 013.18
Merchandise Inventory at Closing	7 082 52
Sales during Period	24 400.42
Estimated Freight on Lumber Sold and Not Paid for, Included in the Accounts Receivable	3 637.00
Wood Inventory	1 250.00
Interest Paid in Advance	332.00
Oil and Waste Inventory	60.00
Coal Inventory	300.00
Insurance Inventory	492.00
Logs Inventory	2 400.00
Supplies Inventory	3 270.95
Feet of Lumber Manufactured, 3,578,000. Deduct Stumpage at \$3.50 per M Feet. Depreciation at \$1.25 per M.	

SMITH LUMBER COMPANY

Trial Balance, December 31, 1914

Capital Stock		\$155 000.00
Timber Lands	\$146 536.24	
Bills Payable		51 000 00
Bills Receivable	1 135.36	
Furniture and Fixtures	1 250.00	
Live Stock	2 375.00	
Band Mill Machinery	8 836.20	
Steel Rail	24 337.69	
Dry Kiln	970.28	
Locomotives, Etc.	25 694.66	
Road Construction	34 659.94	
Mill Construction	10 277.93	
Buildings	10 720.72	
Club House	202.33	
Boarding House	82.31	
Board Account		203.56
Planing Mill	3 424.80	
Planing Mill Construction	1 496.68	
Machine Shop	1 576.74	
Lumber Account		18 692.64
Lath Account		636.66
Slab and Edges		516.73
Co. Tanbark		314.44
Wood Contracts		1 186.19
Rents Collected		972.65
Contract Bark		813.69
Planing Mill Supplies	69.59	

SMITH LUMBER COMPANY

Trial Balance, December 31, 1914.—*Continued*

	$	$
Coal Account	2 505 53	
Insurance	964.05	
Taxes	62.00	
Freight Collect		729.98
Stable	1 148.34	
General Supplies	924.58	
Mill Supplies	590.58	
Locomotive Supplies	1 338.14	
Belting	307.51	
Saws	389.38	
Lath Mill Supplies	27.51	
Wood Tools	1 785.63	
Car Supplies	1 156.15	
General Expense	1 087.94	
Oil and Waste	567 82	
Interest and Discount	64.91	
Commissions		6.45
Salaries	3 336.94	
Sawing at Mill	9 279.50	
Planing Mill Lumber	557.44	
Machinists	1 497.39	
Dry Lumber	3 069.24	
Sundry Labor	49.60	
Railway Operating	2 830.49	
Loader Operating	1 428.79	
Skidder Operating	1 617.00	
Logging and Skidding	10 363.96	
Contract Logging	8 539.92	
Railway Maintenance	832.95	
December Labor		2 851.74
Overdrafts	210.71	
Unclaimed Labor		19.64
Merchandise	2 168.23	
Depreciation		30 905.00
Vouchers Payable		5 728.92
Profit and Loss		78 174.56
Accounts Receivable	22 619.64	
Accounts Payable		210.10
Banks and Cash	1 904.61	
	$356 962.95	$356 962.95

(*West Virginia, May,* 1017.)

3. The North Carolina Lumber Corporation has leased an area of timber lands from the Southern Timber Company for a term of 30 years. The property taken over comprises timber valued at $400,000, buildings and equipment valued at $30,000, and supplies valued at $8,500. At the

termination of the lease the properties are to be returned to the Southern Timber Company in as good condition as when taken over, except as to the timber cut. The North Carolina Lumber Corporation agrees to pay as rental for the timber lands a guaranteed annual dividend of 4 per cent on the Southern Timber Company's capital stock of \$1,000,000 during the life of the lease and a royalty of 10 cents per thousand board measure feet of every thousand feet of timber cut. The North Carolina Lumber Corporation leases also a short railroad and its equipment valued at \$3,000,000, of the North State Transportation Company. The lease is to run 30 years, at the end of which time the property is to be returned in good condition. The lease is to guarantee during the existence of the lease an annual dividend of 6 per cent on the capital stock (\$2,000,000) of the lessor company as rental, and in addition to pay all taxes, improvement expenses, and interest on the outstanding bonds, and to make all needed replacements.

The North Carolina Lumber Corporation finds it necessary to expend for improvements on the Southern Timber Company's property \$100,000 and on the railway \$400,000; and, in order to secure funds for this purpose, the company issues \$500,000 of short-term notes payable \$100,000 each year for five years and drawing 6 per cent interest. The notes are secured by a deposit with the trustee of \$500,000 stock of the Interstate Lumber Company, a successful subsidiary. The notes are sold at 95 to a banking firm. The output of lumber from the leased timber lands for the year 1922 amounted to 122,000 board measure feet, and the net income therefrom to the lessee after paying operating and repair expenses is \$85,000, out of which the rental must be paid. The Southern Timber Company is able, out of the renal received, to apply 3 per cent of the value of the timber lands leased on its extinguishment fund and also to apply to the dividend fund 2½ per cent on its capital stock.

The operations of the leased railway for the year are shown in the following summary:

Gross Freight Earnings		\$750 000
Operating Expenses	\$230 000	
Replacements and Repairs	145 800	
Improvements, Etc., Charged Off	14 000	
Guaranteed Dividend to Lessor	120 000	509 800
Net Earnings		\$240 200

Requirements: The accounting procedure to be considered in connection with the foregoing transactions involve entries for:

(*a*) Lease of the timber lands and equipment.

(*b*) Lease of the railway and equipment.

(*c*) Issue of notes and expenditures for improvements on leased properties.

(*d*) Distribution of rentals of leased properties at end of first year.

(*e*) Southern Timber Company at the beginning and end of first year.

(*f*) North State Transportation Company at the end of the year's operations under lease. (*North Carolina, May,* 1923.)

PROBLEMS FOR CHAPTER XV

MINING COMPANIES

1. The following is the trial balance of the X. Y. Z. Coal Mining Company, as of December 31, 1908:

Trial Balance, December 31, 1908

Cash	$ 5 674.50	
Breaker and Machinery	145 000.00	
Office Building	5 000.00	
Blacksmith Shop	4 000.00	
Inside Construction	15 675.00	
Car and Mine Rail Account	7 534.50	
Horses and Mules	5 600.00	
Accounts Receivable	35 112.25	
Bills Receivable	10 000.00	
Capital Stock—Common		$ 50 000.00
Capital Stock—Preferred		100 000.00
Coal Sales		257 890.00
Accounts Payable		12 500.00
Surplus		17 709.35
Depreciation on Buildings and Machinery		12 000.00
Supplies	8 240.00	
Payroll—Outside	24 701.50	
Payroll—Inside	110 434.25	
Salaries—Superintendent, Etc.	6 000.00	
Salaries—Office Clerks	4 500.00	
Office Expense	1 147.35	
General Expense	750.00	
Claims for Injuries	4 000.00	
Insurance (Expires July 1, 1909)	5 500.00	
Repairs to Buildings	4 075.00	
Repairs to Construction	3 445.00	
Barn Expense	1 500.00	
Selling Expense	4 500.00	
Royalty Account	30 500.00	
Water	800.00	
Fuel	935.00	
Timber and Props	5 475.00	
	$450 099.35	$450 099.35

The total output for the year was 132,300 tons.

An examination of the books and records shows that the following charges had not been entered: Horses and Mules, $2,200; Car and Mine Rail account, $1,450; Claims for Injuries, $1,000. During the year the bookkeeper through error charged $3,415 to Inside Construction instead of to Payroll, Inside.

The coal is mined on lease that averages 20 cents per ton. The inventory is as follows: timber and props, \$1,500; powder, \$555; oil, etc., \$175. In preparing the above statements allowance for depreciation on buildings and machinery may be considered at the rate of 5 per cent.

Prepare Income and Profit and Loss account and balance sheet, as of the above date, showing gross earnings and net earnings, also the average cost per ton. (*New York, January*, 1911; *Maine, June*, 1914.)

2. An examination of the books, records, and accounts of the Pinta and Mercedes Mining Company for the month of June, 1911, discloses: materials and supplies consumed, \$9,300; wages—miners, \$1,530; surfacers and warehousemen, \$475; stablemen and drivers, \$175; general labor, \$45; administration expenses, \$4,250; taxes, \$130.40; balance of wages unpaid, \$135; royalties paid on leased lands not operated, \$125; feed consumed and sundry stable expenses, \$330; spent out of the funded reserve for injuries, \$500.

Mining operations: ore mined, 1,020 tons; brought to the surface and warehoused, 950 tons; sent to the assay office, 1,115 tons; charged by the assay office for analysis and assay, \$10 per ton; cost of transportation to the assay office, 20 cents per ton; shipped from the assay office to the Mexican Smelters Company, 1,295 tons; sale price, \$40 per ton; cost of shipment, 45 cents per ton; charged by the smelters for difference in assay, \$200. Ore inventories, May 31, 1911: in assay office, 180 tons, \$396; in mine galleries, 250 tons, \$375; in warehouses, 500 tons, \$1,000.

Reserves: for leveling land, \$50; for depreciation of machinery, \$300; for the exhaustion of the mine, 10 cents per ton. Repairs on machinery amount to \$50 and are included in the administrative expenses.

Discarded during the period seven narrow-gauge wagons, cost altogether, \$350, aggregate residual value, \$20.

Prepare a statement of income and profit and loss for the month of June, 1911, showing the ton status and the location of the ore inventories on June 30, and the labor and transportation cost per ton of ore surfaced and warehoused, sent to the assay office, and shipped. (*New York, June*, 1912.)

3. The assets and liabilities of the Corry Coal Company, January 1, 1905, as disclosed in its ledger at the main office, were as follows:

Assets		Liabilities	
Accounts Receivable	\$271 500	Accounts Payable	\$147 300
Cash	16 500	Capital	100 000
Mine Account	19 640	Surplus	89 950
Machinery	29 610		
	\$337 250		\$337 250

The mine books disclosed assets January 1, 1905, as follows:

Cash	\$ 1 250
Store Supplies	28 900
Coal	14 800
Due from Wage Earners	4 300
	\$49 250

During the year 1905 the transactions of the company were as follows:

Coal Sold	$297 000
Store Supplies Bought on Credit	163 000
Store Supplies Sold for Cash	179 000
Store Supplies Sold to Wage Earners on Credit	15 105
Wages Earned during Year Paid in Cash	116 700
Wages Earned during Year Not Paid	24 210
Cash Received on Account of Accounts Receivable	434 000
Cash Paid on Account of Accounts Payable	193 500

The mine books, at the close of the year, disclosed assets as follows:

Cash	$10 410
Store Supplies	48 700
Coal	16 400
	$75 510
Less Wages Due to Wage Earners	4 805
	$70 705

These assets amounting to $70,705 were carried in the books of the main office at a valuation of $53,410.20.

Submit balance sheet as of December 31, 1905, from the main-office ledger; also statement giving the true condition of each ledger account, assuming the main ledger accounts to have been properly revised. (*Pennsylvania, May*, 1906.)

4. The Michigan Mining Company leases an iron-ore mine from A. Smith for a term of 30 years at a rental to be based on a royalty charge of 25 cents per ton of ore mined, with a minimum, or dead rent, of $8,000 per annum; the lease providing that the lessee shall have the right to recover dead rents paid in excess of royalties earned within the next succeeding five years. From the following details of the ore mined, prepare the account of the lessor as it should appear on the books of the lessee company, and also the relative nominal or impersonal accounts affected, having regard for the federal income tax requirements as to the collection of the tax at the source.

Year	(Tons) Ore Mined
1907	10 200
1908	15 160
1909	50 280
1910	35 340
1911	30 180
1912	50 240
1913	36 400
1914	60 260

(*Illinois, May*, 1914.)

5. The following figures are taken from the general ledger of the Platteville Coal Company on December 31, 1917. From these trial balance figures and the notations you are asked to prepare:

(a) General operating statement for the year 1917.

(b) Financial statement as of December 31, 1917.

Note: In the appropriate sections of the operating statement show the unit cost, sales price, and profit.

Accounts Payable	$ 6 032.20	Mine Cars	$19 828.96
Accounts Receivable	28 982.27	Mine Supplies and Materials	8 806.00
Bonds Payable	30 000.00	Notes Payable	20 000.00
Buildings and Tipples	99 625.01	Office Furniture and Furnishings	1 891.54
Capital Stock, Authorized	150 000.00	Officers' Salaries	1 200.00
Capital Stock, Unissued	22 500.00	Office Sundry Expense	1 394.57
Cash on Deposit	14 972.47	Petty Cash	1 212 58
Coal Sales	194 463.39	Power House Expense	7 343.79
Commissions from Express Office	162.65	Railway Siding	12 942.61
Commissions from Post Office	392.94	Rent from Tenant Houses	9 696.85
Development Expense	3 229.61	Royalty Paid	8 000.00
Dues Paid to Operators' Association	640.12	Stable Expense	2 871.10
Electric Wire Lines	8 992.90	Steel Rails	12 000.00
Insurance	2 469.21	Store Furniture and Furnishings	2 775.75
Interest Paid	4 790.86	Store Salaries	3 600.00
Labor, Inside Mines	87 787.06	Surplus	25 246.13
Labor, Outside Mines	25 032.99	Tools	1 699.99
Lease Valuation	5 000.00	Transportation of Miners	489.72
Live Stock	3 227.50	Traveling Expenses	641.84
Machinery	42 551.57	Water Works System	4 700.13
Merchandise Purchases	56 087.09	Workmen's Compensation Fund Assessments	1 727.95
Merchandise Sales	63 021.03		

Notations: The company's contract with the lessors provided that if the minimum rental for any year was in excess of the royalty at 10 cents per ton on the output for the year, then, in such event, the company had the privilege of recouping itself in future years. A reliable engineer's report casts a doubt upon the realization of more than 50 per cent of this advanced royalty.

The mining land was leased on a 10 cent per "net" ton basis, the minimum rental being $8,000 per year.

The output for the year was 172,795 net tons.

Analysis of the Profit and Loss account for the two years preceding December 31, 1916, revealed that the rentals paid had exceeded the earned royalty by the sum of $10,379.50.

During the year 1917 a cash payment of $800 was made on an instalment contract for a mining machine costing $1,800. The cash advanced was charged to the Machinery account, but the machine was not received until after December 31, 1917.

Bond interest payable April 1 and October 1, rate being 5 per cent.

The office expense is to be charged one-third to store and two-thirds to mines.

Repairs, etc. amounting to $375.63 had been charged to Rent from Tenants account.

Depreciation on fixed assets is to be taken at 10 per cent per annum.

Inventories December 31, 1917:

Taxes Accrued	$1 402.83
Store Merchandise	7 219.96
Mine Supplies	752.36
Hay and Feed at Stable	450.00
Prepaid Interest	369.33
Prepaid Insurance	950.86

(*c*) On the assumption that an additional 160,000 tons were produced from property owned in fee, what provision should be made for the exhaustion of the property value, and how would it appear in the accounts?

(*d*) If the timber upon the land owned in fee (*b*) was used for props, caps, and other mine purposes, what would be the entries to record the timber so used, and what provision should be made for timber exhaustion? (*Wisconsin, April*, 1918.)

6. The trial balance of the Big Smoke Coal Company at June 30, 1916, was as follows:

Trial Balance, June 30, 1916

Capital (Authorized $150,000)		$127 500.00
Bonds Payable		30 000.00
Bills Payable		20 000.00
Accounts Payable		7 435.03
Surplus		25 246.13
Buildings and Tipples	$ 99 625.01	
Railway Sidetrack	12 942.61	
Water Works System	4 700.13	
Machinery	42 551.57	
Mine Cars	19 828.96	
Tools	1 699.99	
Electric Wire Lines	8 992.90	
Steel Rails (in Use)	12 000.00	
Live Stock	3 227.50	
Store Fixtures	2 775.75	
Lease Valuation	5 000.00	
Development Expense	3 229.61	
Office Furniture and Fixtures	1 891.54	
Petty Cash	1 212.58	
Treasurer's Account (Cash in Bank)	14 972.47	
Accounts Receivable	28 982.27	
Interest	4 790.86	
Officers' Salaries	1 200.00	
Insurance	2 469.21	

Trial Balance, June 30, 1916.—*Continued*

Taxes	$ 1 402.83	
Office Expense	1 394.57	
Dues Paid to Operators' Association	640.12	
Stable Expense (Feed, Etc.)	2 871.10	
Store Salaries	3 600.00	
Coal Sales		$194 463.39
Store (Merchandise) Sales		63 021.03
Rent from Tenant Houses (Net)		9 696.85
Commissions from Post Office		392.94
Commission from Express Office		162 65
Labor—Inside Mines	87 787.06	
Labor—Outside Mines	25 032.99	
Merchandise Purchases	56 087 09	
Power House Expense	7 343.79	
Workmen's Compensation Fund Assessments	1 727.95	
Supplies and Materials—Mines	8 806.00	
Royalty (Amount Paid)	8 000 00	
Transportation of Miners	489.72	
Traveling Expenses—Officers	641.84	
	$477 918.02	$477 918 02

Inventories June 30, 1916:

Store Merchandise	$7 219.96
Mine Supplies	752.36
Hay and Feed at Stable	450.00
Prepaid Interest	369.33
Prepaid Insurance	950.86

Note: The company's contract with the lessors provided that if the minimum rental for any year was in excess of the royalty at 10 cents per ton on the output for the year, then in such event the company had the privilege of recouping itself in future years.

The mining land was leased on a 10 cent per "net" ton basis, the minimum rental being $8,000 per year.

Analysis of the Profit and Loss account for the two years preceding June 30, 1915, revealed that the rentals paid had exceeded the earned royalty by the sum of $10,379.50.

An invoice of $1,800 for one mining machine had not been entered at June 30, 1916, but a payment of $600 had been made on the same and charged to Machinery account. During the year four mules, valued at $600, had been killed in the mines, but no notice had been taken of the fact in the accounts.

Bond interest payable March 1 and September 1, rate being 5 per cent.

The office expense is to be charged one-third to store and two-thirds to mines.

Repairs, etc. amounting to $357.63 had been charged to Rent from Tenants account.

A reserve of 4 per cent is to be established for the ultimate extinction of the plant accounts.

The output for the year was **172,795 net tons.**

Required: (*a*) balance sheet as at June 30, 1916, arranged in what you consider proper form; (*b*) general profit and loss statement; (*c*) statement of mining operations, so arranged as to show average amount received per ton, and average cost and profit (or loss) per ton; (*d*) statement of store income and expenses. (Requirement (*c*) may be shown in two statements, one showing the mining operations, the other dealing with costs, etc.) (*Virginia, October*, 1916.)

7. A syndicate, having invested in a coal property, presents the following balance sheet:

ASSETS	
Acreage	$1 500 000
Physical equipment	500 000
LIABILITIES	
Capital Stock	$1 000 000
Bonds, First Mortgage, 5's	1 000 000

The syndicate estimates it will mine and sell 1,250,000 tons per year, and the life of the mines at this rate will be 25 years.

The surface acreage is not marketable.

It will require $50,000 expended annually in additional equipment. This physical equipment will carry only a small salvage value at the expiration of 25 years.

The bonds are to be called at the rate of $40,000 per annum.

At what profit per ton must the coal be sold so that a dividend of 7 per cent can be paid yearly on the stock, and leave, at the close of business 25 years hence, sufficient convertible assets to pay the stockholders in cash the par value of their stock? Explain.

Make a statement winding up the syndicate's affairs, assuming the general correctness of the estimates. (*Illinois, November*, 1903.)

8. The Indiana Mining Company submits the following trial balance as of December 31, 1916:

Cash on Hand	74.50	
Cash in Bank	5 956.00	
Accounts Receivable	39 112.25	
Accounts Payable		$ 12 500.00
Notes Receivable	15 000.00	
Capital Stock		100 000.00
Surplus		67 709.35
Buildings and Machinery	145 000.00	
Office Building	5 000.00	
Blacksmith Shop	4 000.00	
Inside Construction	15 675.00	
Car and Mine Rail Account	7 534.50	
Horses and Mules	5 600.00	
Coal Sales		267 246.00
Depreciation (Reserve) Building and Machinery		12 000.00

Supplies	$ 8 240.00	
Payroll Outside	24 701.50	
Payroll Inside	110 434.25	
Salaries, Mine Superintendent, Etc.	6 000.00	
Salaries, Office Clerks	4 500.00	
Office Expense	1 147.35	
General Expense	750.00	
Claims Paid (Injuries)	4 000.00	
Insurance (Expires July 1, 1917)	5 500.00	
Repairs to Buildings	4 075.00	
Repairs to Construction, Inside	3 445.00	
Barn Expense, Outside	1 500.00	
Selling Expense	4 500.00	
Royalty Account	30 000.00	
Water	800.00	
Fuel	935.00	
Timber and Props	5 475.00	
(Suspense Account)	500.00	
	$459 455.35	$459 455.35

Examination of books and records shows the following not entered: Horses and Mules, $2,200, Dr.; Car and Mine Rail account, $1,450, Dr.; Claim Paid (injuries), $1,000, Dr.; error, $3,415, charged to Inside Construction should have been Inside Payroll.

Total output of mine for year 1916, 132,300 tons.

Inventories December 31, 1916:

Timber and Props	$1 500
Powder	555
Oil and Sundries	175

Coal is mined on a lease. Royalty, 20 cents per ton. Depreciation at rate of 5 per cent to be considered on buildings and machinery.

Required: prepare Income and Profit and Loss account and balance sheet, as of this date (December 31, 1916) showing gross earnings, net earnings, and the average cost per ton of coal. (*Indiana, November*, 1917.)

9. In making an audit of a coal-mining corporation, covering three years ended March 31, 1917, your attention is directed to the following journal entries dated on the last day of its fiscal year, March 31, 1917:

(*a*) Electric Mining Machinery	$23 000	
Stockholders: A		$7 000
B		7 000
C		4 000
D		2 000
E		2 000
F		1 000

For electrical mining machinery purchased and charged to expense during the year as follows:

1910	$4 000
1911	4 000
1912	4 000
1913	4 000
1914	4 000
1915	3 000

(*b*) Coal Privileges	$33 000	
Stockholders: A		$17 000
B		7 000
C		4 000
D		2 000
E		2 000
F		1 000

For coal privileges purchased and owned as follows (all charged to expense when purchased):

Purchased, 1910–15	$13 000
Estimated Value March 31, 1917	20 000

(*c*) Reserve for Depletion	$13 000	
Coal Privileges		$13 000

For coal consumed during years as follows:

1910	$2 000, 40 acres = $50 per acre
1911	2 000, 40 acres = 50 per acre
1912	2 000, 40 acres = 50 per acre
1913	2 000, 40 acres = 50 per acre
1914	2 500, 50 acres = 50 per acre
1915	2 500, 50 acres = 50 per acre

Required: journal entries to bring books in accord with actual facts. (*Indiana, May*, 1917.)

10. The output of the A B C Coal Company for the year ending December 31, 1899, was 1,567,833 tons, and the trial balance of that date was as follows:

Trial Balance

Plant, Machinery, Etc.	$5 000 000.00	Capital Stock	$5 000 000.00
Construction (in Process)	85 790.50	Sales	3 857 642.76
Bills Receivable	63 000.00	Accounts Payable	89 451.26
Accounts Receivable	21 650.29		
Cash	98 752.31		
Materials (10 Per Cent Inventory)	145 853.20		
Coal on Hand January 1, 1899	12 750.36		
Wages	1 973 376.89		
Supplies (10 Per Cent Inventory)	389 402.20		
Injuries to Persons	10 000.00		
Salaries	45 750.00		
Insurance	20 482.00		
Taxes	26 597.40		
Office Expenses	29 872.50		
Legal Expenses	36 731.09		
Dividends	150 000.00		
Rentals and Royalties	262 530.20		
Freight Outward	361 951.17		
Horse and Wagon Hire	109 532.10		
Allowances	94 321.60		
Miscellaneous	8 750.21		
	$8 947 094.02		$8 947 094.02

Coal on hand per inventory, $15,862.70

From the data given prepare a balance sheet, and Income and Profit and Loss account, the latter to show gross earnings and net earnings.

(*New York, February*, 1910.)

11. The trial balance of the Banner Coal Company as of June 30, 1917, was as follows:

Trial Balance, June 30, 1917

Cash in Bank	$ 64 150.00	
Accounts Receivable	48 725.00	
Notes Receivable	11 645.00	
Deposit on Indemnity Insurance	500.00	
Interest Receivable	55.00	
Commissary Account	6 705.00	
Capital Stock		$100 000.00
Surplus		13 481.00
Accounts Payable		15 295.50
Payroll Payable		1 795.50
Bills Payable		1 080.00

Trial Balance, June 30, 1917.—*Continued*

Railroad Construction	$ 16 423.00	
Incline Construction	8 470.00	
Tipple and Incline Equipment	22 740.00	
Tipple Construction	3 778.50	
Yard and Tipple Track	4 647.00	
Mining Equipment and Machinery	30 379.00	
Tram-road Construction	2 300.00	
Live Stock	1 617.00	
Tenement Houses and Improvement	22 165.50	
Car Hoist	2 425.00	
Motor Line	5 415.00	
Office and Store Fixtures	1 112.00	
Real Estate (Land)	5 092.00	
Shop Tools and Equipment	4 462.00	
Leasehold	24 747.00	
Overdrafts	168.00	
Insurance	343.00	
Reserve for Depreciation		$ 4 431.00
Coal Sales (68,686 Tons)		222 759 00
Royalty	6 869.00	
Selling Expenses	10 368.00	
Mine Supplies	15 087 00	
Mining Labor	33 445.00	
Tenement Rents		909.00
Discount		991.00
Taxes	1 545.00	
Interest	222.00	
Salaries	3 545.00	
Office Supplies and Stationery	228.00	
Lost Accounts	219.00	
Miscellaneous Expenses	1 150.00	
	$360 742.00	$360 742.00

Inventories June 30, 1917: commissary, $5,020; mine supplies, $3,050; unexpired insurance, $125. On July 10, 1917, a 60 per cent dividend was declared and paid to stockholders as of June 30, 1917. On July 15, 1917, a deal was consummated whereby the Kentucky King Coal Company purchased the entire stock of the company for $500,000, the deal dating as of July 1, 1917. In securing its charter, the Kentucky King Coal Company reported that it proposed to issue $1,000,000 worth of stock for values as follows: coal lease on 2,909 acres, $275,000; mine cars, buildings, machinery, equipment, and tools, $225,000.

You are called upon to make up financial statements of the old company and to open the books of the new company, taking due note of the new values and the issuance of $1,000,000 of stock.

Prepare for the Banner Coal Company: (1) statement of operations as of June 30, 1917, allowing 5 per cent depreciation; (2) Balance Sheet as

of June 30, 1917. Prepare for the Kentucky King Coal Company: Balance Sheet as of July 1, 1917. (*Virginia, November*, 1918.)

12. The Natomas Consolidated Gold Fields Company of California leased on January 1, 1909, from George D. Stratton, his placer claims in the Yuba Valley for gold dredging. The term of the lease is 40 years. The consideration stated was to be a royalty of 50 cents per ounce of gold returns, provided, however, that in no year would the payment be less than $10,000, subject to the right of lessee to recover any excess paid over royalty when and if the production exceeded 20,000 ounces in any one of the six years ending December 31, 1914.

From the following production report prepare the proper entries, showing all accounts affected and transcript of the lessor's account as it would appear on the books of the lessee December 31, 1915.

Year	Ounces
1909	15 226
1910	18 394
1911	19 026
1912	25 620
1913	26 240
1914	27 520
1915	30 246

(*Michigan, December*, 1915.)

13. The Reliance Coal Company operates a coal mine. At March 1, 1913, it owned 500 acres of coal land running 10,000 tons to the acre and which had cost (in 1902) $50,000. In connection with their income tax matters, the coal land, at March 1, 1913, is valued at $300 per acre, but during all the years depletion, on the books has been taken at cost on the following production:

	Tons
Prior to March 1, 1913	770 000
1913, since March 1	60 000
1914	80 000
1915	90 000
1916	100 000
1917	110 000
1918	120 000
1919	130 000
1920	140 000

They also have a bonded indebtedness dated January 1, 1915, and, under a trust deed, are required to pay over annually to the Union Trust Company a sum equal to 5 cents per ton on all coal mined. The only entries on their books for this you find to be the annual entry debiting the amount so paid to an account, "Union Trust Company." At December 31, 1920, you are called in, after the books are closed, and, after being told that the Union Trust Company has redeemed $30,000 of the bonds, for which no entry has been made, you are shown the following balance sheet:

Cash	$ 25 000	Accounts Payable	$ 5 000
Plant and Equipment Less Depreciation	70 000	Bonded Debt	60 000
Coal Lands at Cost $50 000 Less Reserve for Depletion 16 000	34 000	Capital Stock	20 000
"Union Trust Company"	34 500	Surplus	78 500
Total	$163 500	Total	$163 500

You are required to show the necessary journal entries to,

(*a*) Set up the March 1, 1913 value of the coal lands.

(*b*) Record on the books, depletion since March 1, 1913, based on the March 1, 1913 value.

(*c*) The entries appropriate and necessary to give effect to the sinking fund agreement and the retirement of the bonds.

(*d*) Show a correct balance sheet at December 31, 1920. (*District of Columbia, December*, 1923.)

14. Your firm audits, annually, the books of the Non-Bessemer Iron Mining Company.

The following cost sheet and condensed profit and loss statement are the result of your audit:

Cost Sheet for Year 1922

(900,000 tons mined)

	Labor	Supplies and Expense	Total	Cost per Ton
1. Mining	$ 615 000	$164 000	$ 779 000	0.866
2. Timbering	108 000	72 000	180 000	0.200
3. Underground Tramming and Hoisting	108 000	900	108 900	0.121
4. Pumping	45 000	7 200	52 200	0.058
5. Mine Captains, Foremen, and Shift Bosses	27 000		27 000	0.030
6. Crushing and Stock Pile	54 000	8 100	62 100	0.069
7. Power, Light, Heat and Water	9 000	198 000	207 000	0.230
8. Loading from Stock Pile	18 000	7 200	25 200	0.028
9. Superintendence and Mine Office	36 000	3 600	39 600	0.044
10. General Maintenance	45 000	162 000	207 000	0.230
	$1 065 000	$623 000	$1 688 000	1.876
11. Fixed Charges and General Expense			472 000	0.524
12. Total Cost			$2 160 000	2.400

Condensed Profit and Loss Statement for the Year 1922

Total Sales, 800,000 tons at $4.80		$3 840 000
Cost of Ore Sold, 800,000 tons at $2.40		1 920 000
Gross Profit		$1 920 000
Deduct:		
Cost Beyond the Mine	$1 280 000	
Royalties	480 000	
Administrative Expense	60 000	1 820 000
Net Profit, 800,000 Tons at $0.125		$ 100 000

From a cursory review of the foregoing, it is apparent that several of the items of cost per ton are unusually high and the net profit per ton is correspondingly low. Therefore it is decided that an investigation shall be made to ascertain the correctness or otherwise of the tonnage mined.

The following information relative to operation is obtained and you are directed by your principals properly to apportion the costs in accordance therewith; show the true net profit on the ore sold; prepare a revised cost sheet showing costs for both broken and hoisted ores and a revised condensed statement of profit and loss.

The usual mining procedure is breaking away the ore, tramming (loading on cars and hauling to the shaft), hoisting to surface, crushing and loading on stock pile.

The practical miner calls ore "mined" only when it reaches the stock pile. Your investigation discloses the fact that, while 900,000 tons reached the stock pile, and this tonnage was the basis for the per-ton cost on the cost sheet, an additional quantity of 125,000 tons was completely mined to the tramming stage. This broken ore, because of its high analysis of iron content, has a better market value than the ordinary ore and will be left as it is until it can be stock-piled by itself. This condition may be considered as analogous to that of goods in process in a manufacturing concern.

Note that the hoisted ore should not be charged for the expense incurred in producing the broken ore. (*American Institute of Accountants, May*, 1923.)

15. On January 1, 1916, A. Black purchased 1,200 acres of coal lands together with the overlying surface, paying therefor $300 per acre, which was considered as $50 per acre for the surface land and $250 for the coal land. Prospecting established the fact that the recoverable tonnage would be approximately 5,000 tons per acre.

The cost of making two openings before getting on a production basis was $30,000, which was capitalized, as was also the cost of prospecting of $18,000.

Productive operations began January 1, 1917, and the tonnages produced from that time to the end of 1922 were as follows:

Year	Tons
1917	150 000
1918	250 000
1919	500 000
1920	350 000
1921	300 000
1922	400 000

At December 31, 1922, a trial balance of this proprietorship was as follows:

Cash	$ 25 000	
U. S. Liberty Bonds	15 000	
Accounts Receivable	85 000	
Coal Unloaded	5 000	
Payroll Advances	500	
Deposit for Compensation Insurance	5 000	
Coal and Surface Lands	360 000	
Tipples	20 000	
Locomotives, Mine Cars, Etc.	45 000	
Rails, Trolley Wire, Etc.	5 000	
Miscellaneous Equipment	17 500	
Miners' Houses	4 500	
Development Expense	30 000	
Prospecting	18 000	
Unexpired Insurance Premiums	1 750	
Notes Payable		$ 70 000
Accounts Payable		22 500
Unpaid Payroll		15 000
Brass Check Deposits		250
Accrued Taxes		7 500
Personal and Miscellaneous Accounts		1 250
Reserve for Depreciation		27 500
A. Black Investment Account		250 000
Coal Sales		1 250 000
Rents Received		900
Powder Sales		750
Discount on Purchases		600
Mining Labor	475 000	
Mining Expenses	167 500	
Transportation	82 500	
Power Plant Expenses	27 500	
General Mine Expenses	87 500	
Plant Fuel	4 500	
Insurance	19 250	
Mine Office Expense	17 500	
Selling Expenses	27 500	
General and Administrative Expenses	62 500	
Interest Paid	9 000	
Taxes—Local	15 000	
Depreciation	12 500	
Donations	1 250	
Total	$1 646 250	$1 646 250

As of January 1, 1923, Mr. Black sold his interest in this business, exclusive of cash and Liberty Bonds, to the Ohio Mining Company, the values for the various accounts being as shown by the books, except the following:

Accounts receivable subject to an allowance of $5,000 to cover doubtful accounts.

Surface land at $45 per acre.

Coal lands at $500 per acre for the unmined acreage.

Other permanent assets at their appraised sound values as follows:

Tipples	$22 500
Locomotives, Mine Cars, Etc.	42 500
Rails, Trolley Wire, Etc.	4 500
Miscellaneous Equipment	20 000
Miners' Houses	4 850

Elimination of Development and Prospecting Expenses.

All liabilities to be assumed by company.

A balance sheet of the Ohio Mining Company, an Ohio corporation, immediately prior to the purchase of the net assets from Mr. Black, was as follows:

Cash	$125 000	
Accounts Receivable	10 000	
Coal Lands	25 000	
Capital Stock—Common 1,000 Shares		$100 000
Surplus		60 000
	$160 000	$160 000

To complete the purchase price and provide for working capital, the company reorganized under the Ohio Laws, with a declared common capital of $50,000, represented by an authorized issue of 20,000 shares of no-par-value common stock, 5,000 shares of 7 per cent cumulative preferred stock of a par value of $100 per share, and also authorized a bond issue of $250,000. The bonds were sold to brokers on the basis of $94 and the preferred stock was sold to the public at $98 per share, the company giving with each share sold one share of no-par-value common capital stock. The previous outstanding common stock was canceled by the exchange of 10 shares of the new no-par-value common stock for one of the old common stock. The discount on the stock and bonds was capitalized.

Prepare statement of income and expense for A. Black for the year 1922, before giving effect to sale, but after including depletion and the amortized portion of development and prospecting expenses on the basis of life of the mines.

Prepare statement showing the profit or loss of Mr. Black in the sale of the business after adjusting prior years' depletion and amortization of development and prospecting expenses.

Prepare journal entries recording the purchase of assets and assumption of liabilities by the company and its refinancing.

Prepare balance sheet of the Ohio Mining Company after recording the business purchased and the completion of its refinancing, together with the full payment of the purchase price to Mr. Black. (*Ohio, May*, 1923.)

PROBLEMS FOR CHAPTER XVI

OIL WELLS, QUARRIES, FISHERIES, AND FARMS

1. A is the owner and operator of a stone quarry which, owing to weather conditions, cannot be operated between December 1 and February 28. B caused damage to the quarry, which delayed the commencement of operations until April 15, from which date the quarry was worked until November 30 and produced 71,000 cubic yards at a quarry cost of 29 cents per cubic yard. The product from all sold at 77 cents per cubic yard. Overhead expenses for the year, $10,000. B repaired the quarry at his own expense. You are required by the lawyer for A to indicate the measure of consequential damage as a basis for action. In your answer illustrate your method. (*Illinois, May*, 1913.)

2. An oil-producing and refining company has a production of 565,000 barrels per month, which has a market value in the field of 65 cents per barrel, the cost of production being 30 cents per barrel.

Instead of selling this oil in the field the company transports same over pipe line, at a cost of 20 cents per barrel, to its refinery. The oil is run through a special process producing in one operation:

	Barrels
Gasoline	27 000
Engine Distillate	2 500
Distillate, 38°	50 500
Distillate, 27–33°	6 000
Residuum	474 000

at a cost of $22,300.

The manager states it is necessary to top the oil by this process to put it in a condition to be safely used for fuel under boilers. The residuum sells for 75 cents per barrel and the other products for $4.50, $2, 90 cents, and 80 cents, respectively.

State the cost per barrel of each of the foregoing products, giving reasons therefor. (*California, November*, 1916.)

3. A owns a marble quarry which is not worked from January 1 to March 1 on account of climatic conditions. The quarry was damaged by B, in consequence of which the beginning of operations was deferred until April 12, from which date the quarry was operated until November 25, and produced 73,528 cubic yards at the quarry cost of 31 cents per cubic yard. The output sold for 68 cents per cubic yard. The overhead expense for the year was $9,250. As a basis for a lawsuit, state the amount of damage sustained by A. (*Texas, June*, 1915.)

4. Trial balance from Jones' building stone business at close of year:

Rough Stock Stone at Commencement	$ 1 589	
Purchases, Rough Stock	5 789	
Machinery, Gas Engines, Etc.	350	
Tools	175	
Wages Paid	3 575	
Insurance, Paid Premiums	115	
Supplies, General	275	
Sales for Year		$10 975
Rents Paid	175	
Expenses, Incidental	250	
Cash in Bank and on Hand	1 150	
Accounts Receivable	1 200	
Accounts Payable		1 975
Capital (Invested)		1 693
	$14 643	$14 643

Inventory, Rough Stock at Close	$960
Depreciation of Machinery	5 per cent
Depreciation of Tools	10 per cent
Unconsumed Supplies	$70
Unexpired Premiums Paid	35
Wages Due and Unpaid	800

Ascertain and exhibit Loss and Gain account, and give balance sheet to accompany same. (*Pennsylvania, November*, 1899.)

5. The Alpha Quarries Company on January 1, 1913, call you in to straighten out the books. You find the following items on the trial balance:

Coal	$ 900.00	
Expense	500.00	
First National Bank	12 160.87	
Insurance	484.70	
Land and Improvements	100 000.00	
Machinery and Tools	22 143.70	
New Plant	17 927.20	
New Process	1 000.00	
Old Plant	17 000.00	
Bond Account		$ 17 872.14
Profit and Loss		69 909.99
Repairs	750.00	
Sand	1 890.00	
Stock		75 000.00
Stripping	543.98	
J. C. Rollins		235.00
D. H. Brill		8 500.00
E. J. Brill		1 500.00
C. Austin	1 300.00	
American Car and Foundry Company		1 689.99
R. B. Brill	2 238.00	
R. B. Brill		5 000.00
F. Howell	3 081.59	
F. Howell Special		10 000.00
Accounts Receivable	7 787.08	
	$189 707.12	$189 707.12

It develops that on March 1, 1912, a first mortgage had been placed upon the entire property of the company to secure a bond issue of even date, $100,000, 6 per cent interest, payable semi-annually after January 1, 1913. The Desirable Trust Company was the trustee under the mortgage and money was secured and deposited from time to time on sale of the bonds as follows:

April 9–12	$7 000	$95.00 and Accrued Interest
10–12	1 000	95.00 and Accrued Interest
12–12	3 000	90.00 and Accrued Interest
13–12	3 000	87.50 and Accrued Interest
16–12	2 000	87.50 and Accrued Interest
May 1–12	500	90.00 and Accrued Interest
25–12	7 000	90.00 and Accrued Interest
25–12	5 000	90.00 and Accrued Interest
28–12	14 500	90.00 and Accrued Interest
July 16–12	5 000	95.00 and Accrued Interest
Dec. 6–12	1 000	95.00 and Accrued Interest

The analysis of the book account for proceeds from bonds, including the above sales, appears as follows:

	Debit			Credit	
April 4–12	Interest Paid on Old Mortgage	$ 22 36	April 18–12	Sale of $16 500 Bonds and Interest	$15 336.09
	½ per cent of Mortgage Tax	500.00	Sept. 13–12	Interest on Deposit	181 50
	Trustee's Fee	173.50	Dec. 6–12	Sale of Bonds and Interest	995.83
27–12	Stationery re Bond Issue	8.20	Dec. 18–12	Sale of Bonds	4 862.50
May 1–12	Attorney's Fees	550.00		Interest on Deposits	181 50
Dec. 30–12	Bond Interest	2 450.00		Interest on Deposits	6.87
	Trustee Account Handling Coupons	37 50			
		$3 741.65			$21 613.70

A stock dividend of 66⅔ per cent was declared payable as of April 1, 1912, coincident with an increase in authorized capital from $75,000 to $200,000. Additional stock was subscribed as follows: R. B. Brill, $5,000; F. Howell, $10,000; E. J. Brill, $1,500; D. H. Brill, $8,500; J. C. Rollins, $7,000; George S. Smart, $1,000.

The Smart item was paid for by engineering services in connection with the new plant.

Formulate journal entries in adjustment of the books and show corrected trial balance. (*Michigan, June,* 1913.)

6. You are appointed a member of a milk commission of your city to investigate the price of producing milk.

The following data are submitted by the Milk Producers Association to the Commission, the net cost representing the cost of producing 2,478 quarts of milk, and you are requested:

(*a*) To prepare a statement showing the cost of producing milk per 100 pounds (100 pounds are equivalent to 46½ quarts).

(*b*) To criticize the data presented.

(*c*) To give all facts which you would consider essential to a scientific accounting analysis of this problem.

Man Labor—158 Hours at 25 Cents per Hour	Other Succulents, $0.90
Horse Labor—8 Hours at 18 Cents per Hour	Other Dry Forage, $0.55
Grain—1,240 Pounds at $50 per Ton	Pasture, $7.30
Silage—5,440 Pounds at $5 per Ton	Bedding, $1.86
Hay—3,500 Pounds at $18 per Ton	Use of Buildings, $8.25
Depreciation on Cows, 12 Per Cent on $77.41	Use of Equipment, $1.29
Interest on Cows, 6 Per Cent on $77.41	Bull Service, $2.13
Miscellaneous Costs (Insurance, Medicines, Salt, Taxes, Etc.), $4.57	Interest on Feed, Inventory, $1.03

The report states that the Federal Department of Agriculture takes 10 per cent of the total costs as the expenses for managerial ability and business risks.

The returns other than milk are given as follows: manure, $12.96; calf, $5; hides and feed bags, 49 cents.

The following facts should be given consideration in interpreting the cost figures which you obtain:

Some farmers raise all their grain, some buy all their grain, and many buy one-half the grain fed, but sell nearly enough to make up for it.

The farmer has the choice of selling the milk to a cheese factory, to a creamery, and to a condensery, each at a different price per hundredweight. (*Wisconsin, April,* 1918.)

7. You are given the following trial balance and information from the Gem Corporation, which owns a young bearing orange grove, at the end of their fiscal year.

Trial Balance, December 31, 1910

Capital Stock		$100 000
Gem Orange Grove	$100 000	
Cost—New Trees and Setting Out	7 000	
Improvements and Betterments	2 500	
Live Stock	1 000	
Wagons and Harness	500	
Tools and Implements	1 000	
Field Boxes	600	
Irrigating Plant	10 000	
Box Material, Paper, Nails	1 800	
Horse Feed	900	
Fertilizer	4 500	
Seeds	500	
Payrolls	4 000	
Salaries	7 500	
General Expenses	1 500	
Insurance	50	
Taxes	100	
Interest	800	
Sales of Fruit		12 000
Prepaid Freight	3 300	
Commissions and Brokerage	200	
Bills Payable		30 000
Surplus		5 750
	$147 750	$147 750

INVENTORIES

Wagons and Harness	$300
Tools and Implements	650
Field Boxes, Used for Bringing Fruit to Packing House	400
Box Material, Paper, Nails	600
Horse Feed	300
Fertilizer	700
Insurance, One Policy Due April 1, 1911.	

You are told that 15,000 boxes of fruit had been shipped and that the amount estimated to be still on the trees was 9,000 boxes; that about 30 acres of vegetables, consisting of cabbages, lettuce, and cucumbers, had been planted between the rows of trees; that the fertilizer for the year before, when there were no vegetables, had cost $2,500; and that the labor payrolls for caring for the grove for that year had been $1,200. You find that $500 charged as labor payrolls was for putting up fruit, and that, of the $7,500 in salaries, only $2,500 was chargeable to this year and the $5,000 was for a former period.

Prepare a balance sheet and a profit and loss statement, stating if, in your judgment, the fiscal year is properly timed, commenting fully on the value of information produced by the two statements. (*Florida, April,* 1911.)

8. A and B of Colorado engaged as equal partners in a stock-raising enterprise with a capital of $10,000, each contributing one-half.

A received a salary of $200 per month.

At the end of three years they decided to terminate the business, and B, who handled all the moneys of the copartnership and kept the books, reported the following receipts and payments:

RECEIPTS	
A's Investment	$ 5 000
B's Investment	5 000
Sales of Cattle	80 359
Loans	15 000
PAYMENTS	
Purchases of Cattle	$57 000
Loans Repaid	14 000
A's Salary	4 200
Interest	1 000
Expenses	9 000
A's Withdrawals	2 200
B's Withdrawals	1 800

A round-up and branding of the herd showed the following inventory: 30 heifers at $20, 38 steers at $30, 75 cows at $20, 10 bulls at $60, 75 yearlings at $12, 100 calves at $8.

There remained with bankers a balance of $16,150, and other assets were as follows: horses, $800; tools, etc., $100; supplies, $150; accounts receivable, $750.

The firm owed the following bills; branding irons, \$40; salt, \$100; loan at bank, \$1,000; unpaid wages, \$260.

You are required to prepare such statements as are necessary to show: (a) the financial condition of the copartnership at its termination, (b) the results of the three years' operations, (c) the interest of each partner. (*New York, January*, 1903.)

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